



June 2021

Port of Seattle T-25 South Design Characterization



Data Report: Soil and Subsurface Sediment Characterization

Prepared for U.S. Environmental Protection Agency

June 2021

Port of Seattle T-25 South Design Characterization



Data Report: Soil and Subsurface Sediment Characterization

Prepared for

U.S. Environmental Protection Agency
Region 10
Seattle, Washington

Prepared by

Anchor QEA, LLC
1201 Third Avenue, Suite 2600
Seattle, Washington 98101

TABLE OF CONTENTS

1	Introduction	1
1.1	Restoration Project Description and Background	1
1.2	Regulatory Context.....	2
1.3	Data Quality Objectives	3
1.4	Document Organization.....	3
2	Field Sampling Summary	5
2.1	2019 Upland Sampling and Processing.....	5
2.2	2020 Supplemental Upland Sampling	6
2.3	Sediment Sampling and Processing	7
3	Data Quality Assessment	9
3.1	Field Data Quality.....	9
3.2	Analytical Data Quality.....	9
3.3	Data Completeness	9
4	Upland Analytical Results	10
4.1	Excavation Intervals.....	10
4.2	Post-Excavation Surface Intervals	10
4.3	Post-Excavation Substrate	12
4.4	Upland PCB Delineation	14
5	Sediment Analytical Results.....	16
5.1	Dredge Intervals	16
5.2	Post-Dredge Surface Intervals.....	16
5.3	Nature and Extent.....	17
6	Geotechnical Results.....	19
6.1	Moisture Content	19
6.2	Grain Size.....	19
6.3	Specific Gravity.....	19
6.4	Density.....	19
7	Next Steps.....	20
8	References	21

TABLES

Table 1	Upland Soil Boring Samples and Analyses
Table 2	Sediment Core Samples and Analyses
Table 3	Upland Boring Excavation Interval Analytical Results
Table 4	Upland Boring Post-Excavation Surface Interval Analytical Results
Table 5	Upland Boring Volatile Organic Compound Analytical Results
Table 6	Upland Post-Excavation Summary
Table 7	Sediment Dredge Interval Analytical Results
Table 8	Sediment Analytical Results
Table 9	Sediment Post-Dredge Summary
Table 10	Upland Boring Geotechnical Results

FIGURES

Figure 1	Vicinity Map
Figure 2	Actual Sampling Locations
Figure 3	Upland and Shoreline Investigation Results
Figure 4	Upland and Shoreline Investigation Dioxin/Furan Results
Figure 5	Upland PCB Delineation Results
Figure 6	Project Elevation Changes
Figure 6a	Cross Sections A and B
Figure 6b	Cross Sections C and D
Figure 6c	Cross Sections E and F

APPENDICES

Appendix A	Field Data
Appendix B	Laboratory Data Reports
Appendix C	Data Validation Reports

ABBREVIATIONS

µg/kg	micrograms per kilogram
AET	Apparent Effects Threshold
ARI	Analytical Resources, Inc.
ASTM	American Society for Testing and Materials International
bgs	below ground surface
CFR	Code of Federal Regulations
CSL	Cleanup Screening Level
EPA	U.S. Environmental Protection Agency
EWRAL	East Waterway Remedial Action Level
FS	Feasibility Study
mg/kg	milligrams per kilogram
MLLW	mean lower low water
MTCA	Model Toxics Control Act
ng/kg	nanograms per kilogram
OC	organic carbon normalized
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
pcf	pounds per cubic foot
PID	photoionization detector
Port	Port of Seattle
QAPP	Quality Assurance Project Plan
RCRA	Resource Conservation Recovery Act
SCO	Sediment Cleanup Objective
SMS	Washington State Sediment Management Standards
SRI	Supplemental Remedial Investigation
SVOC	semivolatile organic compound
T-25 S	Terminal 25 South
TCLP	toxicity characteristic leaching procedure
TEQ	toxic equivalents quotient
TOC	total organic carbon
TPH	total petroleum hydrocarbons
TSCA	Toxic Substances Control Act
VOC	volatile organic compound

1 Introduction

This Data Report describes the results of testing soil borings and sediment cores along the Port of Seattle (Port) Terminal 25 South (T-25S; Figure 1) to support the habitat restoration project being considered by the Port at this location. Results of this chemical and geotechnical investigation will be used to support habitat restoration planning and waste characterization for soil and sediment. This Data Report describes data collection efforts, data quality, and sample results.

1.1 Restoration Project Description and Background

The potential T-25S restoration project includes restoration of intertidal and shallow subtidal habitat within and around the footprint of a derelict creosote-piling dock structure, in addition to fill removal from more than 5 acres of adjacent uplands, to create off-channel emergent marsh and riparian habitat. The project, if completed, will be significant in that it is located in a critical estuarine and marine transition area, important to juvenile salmon. In addition, fine-grained intertidal habitat is rare in the East Waterway and no emergent marsh or riparian resources are present.

As described in the Quality Assurance Project Plan (QAPP; Anchor QEA and Windward 2019), preliminary design has been completed. The project will involve removal of the remaining creosote timber piling, connecting timbers, concrete decking, and associated structures within the footprint of the former dock, which is located between -30 and +10 feet mean lower low water (MLLW). In addition, approximately 250 cubic yards of in-water rubble, riprap, debris, and abandoned material will be removed from intertidal and shallow subtidal areas.

Existing topography in the upland area ranges from +12 to +16 feet MLLW. Soil excavation will extend between 400 and 750 feet landward from the ordinary high water mark, depending on final design, to achieve off-channel emergent marsh elevations of between +5.5 feet MLLW to +12 feet MLLW. The Port anticipates removing up to 60,000 cubic yards of previously filled upland soil to create the off-channel marsh. All excavation areas will be backfilled with 1 to 2 feet of imported substrate to support habitat functions, depending on the location and elevations of each area. The inlet and outlet of the off-channel habitat will be graded to +5.5 feet MLLW, while the off-channel area will be graded to have a central high point, or saddle, at +9.5 feet MLLW to ensure drainage and prevent fish isolation during extreme low tides. A riparian buffer will line the landward margin of the site and be densely planted with native trees and shrubs.

An intertidal berm will extend along the current waterward margin of the site with wide channel openings at the north and south boundary. The berm will crest at approximately +13 feet MLLW and will be constructed of anchored and partially buried large woody debris, interplanted with native emergent and transitional vegetation. Off-channel habitat will extend from the berm landward at a 10:1 to 25:1 slope throughout the off-channel area. The on-channel slope will not exceed 6:1 and will

gradually transition to existing subtidal slope conditions of the East Waterway with a series of flat intertidal and subtidal benches.

Along the east side of the restoration area, a stormwater pond may be installed that will retain and treat stormwater from the nearby developed areas and be released as a source of freshwater to the restoration area. Public access and a potential trail may also be added to the south and east edges of the project area.

1.2 Regulatory Context

The sediments within the East Waterway are part of the East Waterway Operable Unit of the Harbor Island Superfund Site. The U.S. Environmental Protection Agency (EPA) is overseeing cleanup studies in the East Waterway Operable Unit under an administrative settlement agreement and order on consent (ASAOC) with the Port, including completion of the Supplemental Remedial Investigation/Feasibility Study (SRI/FS). The SRI was approved by EPA in 2014 (Windward and Anchor QEA 2014), which included the baseline ecological risk assessment, baseline human health risk assessment, and assembled data to identify the nature and extent of contamination in the East Waterway, evaluate sediment transport processes, and identify potential sources and pathways of contamination to the East Waterway. The FS was approved by EPA in 2019 and develops and evaluates East Waterway-wide remedial alternatives to address risks posed by contaminants of concern within the East Waterway. EPA has indicated it plans to release a Proposed Plan in 2021 that will identify a preferred remedial alternative for the East Waterway. After public, state, and tribal comments on the Proposed Plan, EPA will select the final remedial alternative in the Record of Decision. If the T-25S restoration project moves forward, the Port and EPA anticipate they would develop an agreement to support and provide regulatory oversight for cleanup design within the T-25S Project Boundary (Figure 2). Characterization is currently being conducted under the existing ASAOC.

Information from the SRI on the nature and extent of contamination of the sediments in the vicinity of T-25S is summarized in QAPP Section 2.5, which was used to develop the sampling program. Remedial technologies that could be employed to address sediment contamination at T-25S are described in the FS. Specifically, all active remedial alternatives in the FS include removal of approximately 1,000 treated piles along T-25S (piling field) and removal of contaminated sediment in the piling field area. Two technologies are evaluated in the FS for contaminated sediments in the T-25S area: 1) removal; or 2) partial removal and cap (with partial dredging depths assumed to be equivalent to the cap thickness). While the selected remedy in this area has not been identified, the data collected that are described in this Data Report are intended to support planning and design of the T-25S restoration project so that it is compatible with any of the remedial alternatives that will be selected by EPA. While construction of the T-25S project may occur prior to cleanup of the entire East Waterway, the Port in that case would conduct cleanup design activities under EPA CERCLA oversight, potentially through an ASAOC amendment or new ASAOC, to ensure the project is

protective of human health and the environment without limiting future cleanup actions in the East Waterway.

One upland exploration (soil boring) conducted in January 2019 identified total polychlorinated biphenyl (PCB) concentrations above the Toxic Substances Control Act (TSCA) PCB remediation waste threshold of 50 parts per million (equivalent to 50,000 micrograms per kilogram [$\mu\text{g}/\text{kg}$]). Additional upland explorations were conducted in August 2020 according to a QAPP Addendum (Anchor QEA 2020) to delineate PCB concentrations above 50,000 $\mu\text{g}/\text{kg}$ in this area. The Port will manage the TSCA-level PCB remediation waste under EPA CERCLA oversight (e.g., an amendment to the current ASAOC) during habitat restoration design to characterize, remove, and dispose of PCB remediation waste in accordance with TSCA regulations (40 Code of Federal Regulations [CFR] 761.61). Disposal of PCB remediation waste will also be consistent with the CERCLA cleanup.

1.3 Data Quality Objectives

The data quality objectives for this investigation were discussed in the QAPP and QAPP Addendum (Anchor QEA 2020). Data collected from upland borings and sediment cores were intended to characterize the pre-construction conditions at T-25S prior to the restoration. The following are the data quality objectives:

1. Characterize sediment and soil to be excavated for disposal
2. Characterize the expected post-excavation surface
3. Characterize the sediment and soil geotechnical properties for static and seismic stability evaluations
4. As part of the supplemental 2020 investigation, characterize the lateral and vertical extent of PCB remediation waste (i.e., PCBs exceeding 50,000 $\mu\text{g}/\text{kg}$) encountered during the first phase of investigation at upland soil boring location T25-SB03
5. As part of the supplemental 2020 investigation, characterize soils to be excavated for disposal in the location of a proposed oil/water separator (i.e., at T25-SB-16)

1.4 Document Organization

This Data Report is organized into the following sections:

- **Section 1 – Introduction**
- **Section 2 – Field Sampling Summary:** Provides an overview of 2019 and 2020 field sampling components, including any deviations from the QAPP and QAPP Addendum
- **Section 3 – Data Quality Assessment:** Presents a summary of the data quality objectives and the results of data validation
- **Sections 4 to 6 – Sample Results:** Presents the chemical and geotechnical testing results for the upland and sediment borings, including a summary of results that exceed Marine

Washington State Sediment Management Standards (SMS) sediment quality criteria¹, the Remedial Action Levels used in the East Waterway Superfund Site Feasibility Study (EWRALs), Washington State Model Toxics Control Act (MTCA) soil cleanup levels, Resource Conservation and Recovery Act (RCRA) disposal criteria, and the PCB remediation waste threshold in TSCA, as applicable

- **Section 7 – Next Steps:** Provides a summary of the next phase of work and EPA coordination
- **Section 8 – References:** Lists references cited in the development of this Data Report
- **Tables and Figures**
- **Appendices:** Field Data, Laboratory Data Reports, and Data Validation Reports

¹ The Sediment Cleanup Objective (SCO) from Washington State SMS is equivalent to the EWRAL for all benthic COCs, except for dioxin/furans, which has an EWRAL that is not in SMS.

2 Field Sampling Summary

Sampling was conducted in accordance with the approved QAPP and QAPP Addendum. The QAPP and QAPP Addendum provide the sampling design, target sampling locations, procedures for sample collection and processing, data quality control, and data reporting requirements. The QAPP and QAPP Addendum were written in accordance with EPA guidance for preparing QAPPs (EPA 2002). Any deviations from the QAPP or QAPP Addendum are discussed in this section.

2.1 2019 Upland Sampling and Processing

Soil borings were collected from 15 upland locations from January 15 to 18, 2019 (Figure 2; Table 1). Borings were collected using sonic boring collection methods performed by Holocene Drilling using a track-mounted sonic drill rig with a 4-inch borehole diameter steel core barrel. Soil within the core barrel was extruded into disposable plastic liners using low-frequency sonic vibrations to minimize sample disturbance before being transferred to the upland processing area. Two soil borings were advanced for location T25-SB04 because of poor recovery due to concrete debris in the proposed post-excavation surface interval in the first attempt (T25-SB04A). The second attempt (T25-SB04B) successfully retrieved the post-excavation surface interval.

Sample processing was conducted in accordance with the QAPP, with a few exceptions. Each soil boring was processed the same day it was collected. For each collection interval, the plastic liner was cut lengthwise and opened for processing. All cores were logged for major lithological features in accordance with American Society for Testing and Materials International (ASTM) method D2488 and photographed (Appendix A). Field screening also included photoionization detector (PID) monitoring in 1-foot intervals.

Volatile organic compound (VOC) samples were not planned but were collected from six borings. A pair of VOC samples were collected from six borings with PID readings above instrument baseline (T25-SB02, T25-SB04B, T25-SB07, T25-SB08, T25-SB09, and T25-SB10). For each boring, one sample was collected within the detected PID interval, and the other sample was obtained from an interval below with a baseline PID reading to potentially bound the reading. After collection, the field observations were reviewed and two locations (T25-SB07 and T25-SB09) were selected for VOC analyses due to the presence of elevated readings combined with hydrocarbon-like or solvent-like odor.

Discrete samples were collected per the analytical testing scheme described in the QAPP. Some sample intervals were adjusted due to field conditions encountered or lithology of the boring. Samples were collected from material in excavation areas, which was sampled for waste characterization parameters, including toxicity characteristic leaching procedure (TCLP); post-excavation surface material, which represents the exposed surface after habitat project

excavation; and geotechnical samples that will provide subsurface conditions to support subsequent phases of design.

Samples were placed in decontaminated stainless-steel bowls and mixed until homogenous in color and texture using a stainless-steel spoon. The soil was then spooned into laboratory-supplied jars for analyses. A chain-of-custody form was logged by the processing staff and relinquished to the laboratory staff (Appendix A). Soil samples collected and submitted to Analytical Resources, Inc. (ARI) for analyses and archive are listed in Table 1.

Geotechnical testing was conducted at four upland locations: T25-SB02, T25-SB03, T25-SB04A, and T25-SB05. Standard penetration testing was conducted at these locations using a split spoon sampler in accordance with ASTM D1586.

2.2 2020 Supplemental Upland Sampling

Additional soil borings were collected from August 5 to August 6, 2020, to characterize the lateral and vertical extent of PCB remediation waste (i.e., PCBs exceeding 50,000 µg/kg) encountered during the first phase of the investigation at upland boring location T25-SB03 and to characterize soils proposed for excavation in the location of a proposed oil/water separator. Ten borings (T25-SB-03A to T25-SB-03G) were collected in the area surrounding T25-SB03, and one boring (T25-SB-16) was collected near the southern property boundary (Figure 2).

The supplemental borings were collected by Holt Services, Inc. using a track-mounted sonic drill rig with a 4-inch diameter steel core barrel. All borings were advanced to 20 feet below ground surface (bgs). Soil within the core barrel was extruded into disposable plastic liners using low-frequency sonic vibrations for processing on site. Additional borings were advanced at stations T25-SB-03B and T25-SB-03D due to poor recovery at 10 to 15 feet bgs in the original locations. Boring T25-SB-03BB successfully retrieved the target intervals. Boring T25-SB-03DD retrieved soil from all but the 10- to 11-foot bgs depth interval.

Sample processing was conducted in accordance with the QAPP and QAPP Addendum. The PCB delineation borings (i.e., T-25-SB-03A to T25-SB-03G) were sampled in 1-foot increments for the entire length of the boring. Three samples per boring in the four locations closest to T25-SB03 (i.e., T25-SB-03B, -03D, -03E, and -03G) were submitted for PCB analysis, starting at 7-8 feet bgs, just above where PCBs were highest at T25-SB03, and extending to 10 feet bgs, just below where PCBs were highest at T25-SB03. The remaining sample intervals were initially archived. Additional samples were triggered for PCB analysis at borings T25-SB-03E and T25-SB-03F following review of preliminary PCB data.

The proposed excavation interval at boring T25-SB-16 (0 to 10 feet bgs) was sampled to characterize the soil for disposal (Table 1). The composite sample was analyzed for waste characterization

parameters including TCLP. One-foot intervals to the bottom of the boring were also sampled and archived for potential future analysis.

All samples were submitted to ARI for analyses and archive as listed in Table 1.

2.3 Sediment Sampling and Processing

Sediment cores were collected from nine in-water locations from March 24 to 26, 2019 (Figure 2; Table 2). Cores were collected by Gravity Marine Services using a vibracorer. The vibracorer was deployed by two methods: 1) for cores T25-SC01 through T25-SC05, the vibracorer was deployed on a remote floating platform in order to navigate between the narrow spacing of the old piling, and 2) cores T25-SC06 through T25-SC09 were collected using a vessel-mounted vibracorer. A differential global positioning system unit was used for positioning (accuracy ± 2 feet) to navigate to the proposed sampling stations and record the actual sampling position at the time of sampling. Coordinates were recorded digitally and on core collection field logs in latitude and longitude as decimal minutes using the World Geodetic System of 1984 (Appendix A).

Water depth was measured using either a lead line from the bow or the vessel's depth sounder. Preliminary predicted tidal elevations (feet MLLW) for Seattle, Washington (National Oceanic and Atmospheric Administration Station 9447130), was recorded at the time of core collection. The mudline elevation (feet MLLW) was calculated by subtracting the tidal elevation from the water depth. At each sampling station, water depth, tidal elevation, and elevation to the nearest tenth of a foot were recorded on core collection logs (Appendix A) and are summarized in Table 2.

Multiple cores were driven at each location until the core acceptance criteria described in the QAPP was achieved. Cores T25-SC01 through T25-SC05 and T25-SC09 were offset from their target locations due to substantial debris obstructing the target locations. At location T25-SC09, the fifth attempt was accepted on March 24, 2019, with 56% recovery and samples were archived. An additional sixth attempt was made on March 26, 2019, with improved recovery depth and percent recovery, which replaced the original samples collected. The actual core locations, date, drive penetration, recovery measurements, and distance from target locations for the accepted cores are provided in Table 2.

Sediment cores were processed on board the vessel. When processed, the entire core length contained within the polyethylene liner was extracted from the core tube, with the ends tied off and laid in a core processing tray across the bow of the vessel. The liner was cut open using a decontaminated stainless-steel knife. Field staff remeasured the cores and delineated elevation depths and sampling intervals based on the calculated mudline elevation. Core lengths and sample intervals were based on in situ depth and were corrected for compaction based on core recovery. All cores were logged for major lithological features in accordance with ASTM procedures

(ASTM D 2488 and ASTM D 2487 – United Soil Classification System) and photographed (Appendix A). Field screening also included PID monitoring in 1-foot intervals.

Discrete samples were collected per the analytical testing scheme described in the QAPP. Samples were placed in decontaminated stainless-steel bowls and mixed until homogenous in color and texture using a stainless-steel spoon. The soil was then spooned into laboratory-supplied jars for analyses. A chain-of-custody form was logged by the processing staff and relinquished to the laboratory staff (Appendix A) upon sample transfer. Sediment samples collected and submitted to ARI for analyses and archive are listed in Table 2.

3 Data Quality Assessment

This section provides information on the data quality, including field and laboratory quality control measures, data validation findings, and completeness. Analytical laboratory reports and data validation reports are provided as Appendix B and Appendix C, respectively.

3.1 Field Data Quality

Field data were checked for completeness and accuracy prior to submittal to the database. Soil boring and sediment cores were processed following the QAPP and submitted for the appropriate chemical and physical analyses. Chain-of-custody protocols were followed and no deviations from the QAPP were identified. Elevation depths and sampling intervals were determined based on the calculated mudline elevation for sediment core samples, ensuring the appropriate depth intervals were used for disposal characterization.

3.2 Analytical Data Quality

Detailed data quality objectives and QA procedures are provided in the QAPP. Laboratory data packages were validated by Laboratory Data Consultants, Inc. under EPA National Functional Guidelines for Data Review (EPA 2016, 2017a, 2017b) and using the data quality objectives described in the QAPP. Validation reports are in Appendix C. Data qualifiers applied to results during validation have been incorporated into the final database for this project. Data qualifiers assigned as a result of the data validation and their definitions are shown on the analytical results tables (Tables 3, 4, 5, 7, and 8). Some data were qualified as estimated based on a method, validation, or project-specific criterion. Most data were considered useable as reported or as qualified. Four benzoic acid results in four sediment core samples were rejected due to very low recoveries in the laboratory control sample.

Reporting limits were acceptable as reported and no reporting limits exceeded screening criteria for results below detection.

3.3 Data Completeness

Samples were collected from all locations and samples were submitted to the laboratory for analyses or archive as required in the QAPP and QAPP Addendum. The laboratory followed the specified analytical methods and all requested sample analyses were completed. Analytical completeness is a measure of the amount of data determined to be valid in proportion to the amount of data collected. Data qualified as estimated are considered valid and rejected data are considered not valid. The majority of results were valid and four sediment benzoic acid results were rejected. Greater than 99% of data are valid; the completeness goal of 95% was met.

4 Upland Analytical Results

The preliminary design for the potential T-25S habitat restoration includes some upland areas that will be excavated below existing elevations and other areas that will be left at grade with minimal change in elevation. The sampling design was developed to conduct waste characterization testing to inform management of excavated material during construction. It also includes analysis of the post-excavation surface interval to inform the habitat design. This section summarizes the analytical results for the upland samples, including discussion of any exceedances of applicable screening criteria. Table 1 includes a summary of upland soil borings, samples collected and analyzed, design subgrade elevations, and sample interval elevations.

4.1 Excavation Intervals

Excavation intervals were tested for TCLP metals, semivolatile organic compounds (SVOCs), polycyclic aromatic hydrocarbons (PAHs), PCB Aroclors, and total petroleum hydrocarbons (TPH; diesel and motor oil range). Table 3 presents results that are screened against MTCA Method A Unrestricted and Industrial Land Use cleanup levels, RCRA criteria, and the PCB remediation waste threshold of 50,000 µg/kg in TSCA. These data will inform excavation best management practices and options for soil management and disposal.

No TCLP metals concentrations exceeded RCRA thresholds. No SVOC or TPH concentrations exceeded MTCA or RCRA criteria within the excavated intervals. Benzo(a)pyrene and total carcinogenic PAH toxic equivalents quotient (TEQ) concentrations exceeded MTCA criteria in three samples: T25-SB02 exceeded industrial criteria for each, and T25-SB05 and T25-SB11 exceeded unrestricted criteria for each. PCBs were above industrial MTCA criteria in T25-SB11 (10,500 µg/kg) and above unrestricted MTCA criteria in T25-SB02 and T25-SB03 (1,130 and 1,400 µg/kg, respectively). No PCB concentrations in excavation intervals (composite samples) exceeded the TSCA PCB remediation waste threshold of 50,000 µg/kg.

The excavation interval at T25-SB-16 (0 to 10 feet bgs), the location of a proposed oil/water separator, was also tested for TCLP metals, SVOCs, PAHs, PCBs, and TPH. No TCLP metals concentrations exceeded RCRA thresholds. No SVOC, PAH, PCB or TPH concentrations exceeded MTCA or RCRA criteria at this location. The total PCB concentration was well below 50,000 µg/kg.

4.2 Post-Excavation Surface Intervals

Table 4 presents results of post-excavation intervals for borings T25-SB01 through T25-SB09 and T25-SB11, which are located within the restoration footprint of the conceptual habitat restoration design. Borings T25-SB10, T25-SB12, T25-SB13, and T25-SB15 are located in the potential habitat restoration expansion area; these borings were tested only in the 0- to 2-foot interval. T25-SB14 is located within the potential footprint for the stormwater pond and was tested only in the 3- to

5-foot interval. Sample results for PCB delineation borings (i.e., T25-SB-03B, T25-SB-03D, T25-SB-03E, T25-SB-03F, and T25-SB-03G), also presented in Table 4, are discussed in Section 4.4.

Results were compared to the appropriate SMS SCO and Cleanup Screening Level (CSL) or Apparent Effects Threshold (AET) SCO and CSL, depending on total organic carbon (TOC) concentrations (i.e., for samples with TOC below 0.5% or above 3.5%, the AET criteria were used for screening), and to the EWRAL. Figure 3 shows sample intervals compared to SMS criteria for all analyses conducted. Figure 4 shows sample intervals analyzed for dioxin/furans compared to the EWRAL. Some additional intervals were tested below the excavation surface interval in order to further delineate the extent of elevated concentrations within the excavation surface. Additional intervals were analyzed for contaminants that exceeded SMS criteria in T25-SB02 (PAHs, PCBs), T25-SB03 (PCBs), and T25-SB09 (metals, SVOCs, PAHs, PCBs, dioxin/furans).

Post-excavation surface interval results were below the SCO and CSL at locations T25-SB01, T25-SB04, T25-SB05, T25-SB07, T25-SB10, T25-SB13, and T25-SB14. The remaining location results exceeded the SMS SCO or CSL for SVOCs, PAHs, PCBs, or dioxin/furans. Additional archive testing of deeper intervals was not conducted for the following borings with low post-excavation surface intervals:

- **T25-SB06:** The 0- to 2-foot interval contained phenanthrene slightly above SCO (130 milligrams per kilogram organic carbon normalized [mg/kg OC]) but had low TOC (0.83%).
- **T25-SB08:** The 12- to 14-foot interval contained benzoic acid above the CSL (120 µg/kg) and PCBs above SCO (25 mg/kg OC; 600 µg/kg).
- **T25-SB11:** The 9- to 11-foot interval contained PCBs above the CSL (720 mg/kg OC; 4,800 µg/kg).
- **T25-SB12** (outside current conceptual design footprint): The 0- to 2-foot interval contained diethyl phthalate above the SCO (358 µg/kg), fluoranthene above the SCO (2,330 µg/kg), phenanthrene above the AET CSL (3,810 µg/kg), and total low-molecular-weight PAHs above the AET CSL (5,800 µg/kg).
- **T25-SB15** (outside current conceptual design footprint): The 0- to 2-foot interval contained butylbenzyl phthalate above the AET SCO (73.5 µg/kg).

Archived intervals below the post-excavation surface intervals were triggered for additional analyses in the following three borings:

- **T25-SB02:** Fluoranthene, phenanthrene, and PCBs were above SCO in the 3- to 5-foot interval but were not above the SCO in the 5- to 7-foot interval.
- **T25-SB03:** In the 7.5- to 9.5-foot interval, phenanthrene was slightly above the SCO (105 mg/kg OC), PCBs were above the CSL and TSCA threshold (3,620 mg/kg OC; 62,300 µg/kg), and dioxin/furans were above the EWRAL (1,000 nanograms per kilogram [ng/kg] TEQ). PCBs were analyzed in the next three lower intervals and measured below the TSCA

threshold at 48,000 µg/kg (9.04% TOC) in the 9.5- to 11.5-foot interval, 16,900 µg/kg in the 11.5- to 13.5-foot interval, and 346 µg/kg in the 14.2- to 16.2-foot interval. PCB results are presented in Figure 5.

- **T25-SB09:** In the design post-excavation surface interval (8 to 9.1 feet), only PCBs exceeded the AET SCO. However, additional testing was conducted below this interval due to the high PCB concentrations in T25-SB03, which is nearby. In the 9.1- to 10-foot interval, benzoic acid exceeded the CSL (9.31% TOC), PCBs exceeded the AET CSL (14,000 µg/kg), and dioxin/furans exceeded the EWRAL (310 ng/kg TEQ). PCBs in the 10- to 13-foot interval were below the SCO (7 mg/kg OC; 130 µg/kg).

Four samples from two locations were submitted for VOC analyses due to elevated PID readings and field observations, as described in Section 2.1. Results are presented in Table 5 and were either below detection or were detected at very low levels, with the exception of 4-isopropyltoluene. This compound was detected at 15.7 mg/kg in the 13.4- to 13.5-foot interval of location T25-SB07 and 72.9 mg/kg in the 9.9- to 10-foot interval of location T25-SB09. The intervals below these samples were also analyzed for VOCs and the 4-isopropyltoluene concentrations were significantly lower than those in the intervals above them. These concentrations bound the elevated 4-isopropyltoluene vertically, and low PID readings in adjacent borings bound it laterally.

4.3 Post-Excavation Substrate

Figure 6 shows the planned project elevation changes and locations of the cross sections presented in Figures 6a through 6c. These cross sections show multiple cores and borings historically collected and as part of this investigation (Appendix A). The cross sections depict the existing grade, proposed grade, proposed subgrade (equivalent to the post-excavation surface), approximate thickness of wood debris, and the native sediment elevation based on boring and sediment core observations. Cross sections run generally northwest to southeast and are labeled A through F from the south to north areas. Figure 3 also shows wood debris, design subgrade, and native sediment elevation in comparison to the chemical testing results. This information is also summarized in Table 6.

Native contact ranged generally from -3.6 feet MLLW at T25-SB06 to +1.7 feet MLLW at T25-SB05 in the design area. The one exception was at location T25-SB02, which encountered native material at -6 feet MLLW. The native elevation was fairly consistent across all borings and significantly below the proposed subgrade surface.

Wood debris was observed in the following borings:

- **T25-SB02:** Wood debris was observed from 17.7 to 18.8 feet, immediately above the native surface. The post-excavation design interval is 3 to 5 feet, which contains SCO exceedances. The 5- to 7-foot interval is below SCO, which is 12.7 feet above the wood debris layer and 12 feet above the native surface.

- **T25-SB03:** Wood debris was observed from 13.5 to 14.2 feet and the native surface was at 19 feet. The post-excavation design interval is 7.5 to 9.5 feet; however, that interval and the two intervals below it (9.5 to 11.5 feet and 11.5 to 13.5 feet) exceeded the CSL for PCBs. The 14.2- to 16.2-foot interval was below the wood debris layer and below the PCB CSL but above the SCO. No further testing was conducted.
- **T25-SB-03B:** A wood debris interval was not observed, and the native surface was observed at 18.3 feet. The post-excavation design interval is 8 to 9 feet; however, that interval exceeded the SCO for PCBs. The interval above and below it (7 to 8 feet and 9 to 10 feet) exceeded the CSL for PCBs. No further testing was conducted.
- **T25-SB-03C:** Wood debris was observed from 14.6 to 15 feet and the native surface was at 16.6 feet. The post-excavation design depth is 7.6 feet. No testing was conducted in this boring.
- **T25-SB-03D:** Wood debris was observed from 15 to 16 feet, and the native surface was observed at 18.8 feet. The post-excavation design surface is 8 to 9 feet; however, that interval exceeded the SCO for PCBs. The interval above and below it (7 to 8 feet and 9 to 10 feet) exceeded the CSL for PCBs. No further testing was conducted.
- **T25-SB-03E:** Wood debris was observed from 10 to 14 feet, and the native surface was observed at 17.1 feet. The post-excavation design surface is 8 to 9 feet; however, that interval and the interval below it (9 to 10 feet) exceeded the CSL and TSCA threshold for PCB remediation waste. Additionally, sample intervals from 7 to 8 feet and 10 to 11 feet exceeded the CSL for PCBs. No further testing was conducted.
- **T25-SB-03F:** Wood debris was observed from 10 to 15 feet, and the native surface was observed at 17.9 feet. The post-excavation design surface is 8 to 9 feet and had no exceedances. The 7- to 8-foot interval exceeded the CSL for PCBs. The 9- to 10-foot interval exceeded the CSL and TSCA threshold for PCB remediation waste. The 10- to 11-foot interval exceeded the SCO for PCBs. No further testing was conducted.
- **T25-SB-03G:** Wood debris was observed from 14.7 to 15 feet, and the native surface was observed at 17.7 feet. The post-excavation design surface is 8 to 9 feet; however, that interval and the interval above and below it (7 to 8 feet and 9 to 10 feet) exceeded the CSL for PCBs. No further testing was conducted.
- **T25-SB-03H:** Wood debris was observed from 11.3 to 15 feet, and the native surface was observed at 17.3 feet. The post-excavation design depth is 8.3 feet. No testing was conducted in this boring.
- **T25-SB06:** Wood debris was observed from 12 to 14 feet, directly above the native surface at 14 feet. The post-excavation design interval is 0 to 2 feet, which is 10 feet above the wood debris layer and 12 feet above the native surface. The 0- to 2-foot interval was slightly above the SCO for phenanthrene. No further testing was conducted.

- **T25-SB07:** Wood debris was observed from 13.5 to 15 feet, directly above the native surface at 15 feet. The excavation design surface is 8 to 10 feet, which was below the SCO. The clean excavation design surface is 5.5 feet above the wood debris interval.
- **T25-SB08:** Wood debris was observed from 14.7 to 15.3 feet and the native surface was observed at 18.2 feet. The post-excavation design surface interval is 12 to 14 feet, which is just above the wood debris interval, above the CSL for benzyl alcohol, and above the SCO for PCBs. No further testing was conducted.
- **T25-SB09:** Wood debris was observed from 13 to 15 feet, directly above the native surface at 15 feet. The post-excavation design surface interval was 8 to 9.1 feet and was above the SCO for PCBs. The interval directly below that was above the CSL for benzoic acid and PCBs. In addition, the dioxin/furan TEQ value was above the EWRAL. The 10- to 13-foot interval was below the SCO for PCBs, which is directly above the wood debris layer.
- **T25-SB10:** Wood debris was observed from 13.5 to 15 feet, directly above the native surface. The post-excavation design surface interval is 0 to 2 feet, which was below the SCO.
- **T25-SB11:** A layer of wood debris was observed at 11 to 12.5 feet, and the native surface was at 19 feet. The post-excavation design surface interval was 9 to 11 feet, which was above the CSL for PCBs and immediately above the wood debris layer. No additional testing was conducted.
- **T25-SB-16:** Wood debris was observed from 10 to 12.6 feet and the native surface was observed at 19 feet. The post-excavation design interval is 10 to 11 feet. Only the excavation interval of 0 to 10 feet was analyzed. No additional testing was conducted.

4.4 Upland PCB Delineation

Supplemental soil borings were collected in August 2020 to characterize the lateral and vertical extent of PCB concentrations exceeding the TSCA PCB remediation waste threshold of 50,000 µg/kg encountered during the first phase of the investigation at upland boring location T25-SB03.

Ten step-out PCB delineation borings (i.e., T-25-SB03A to T25-SB03G) were performed at eight locations in the area surrounding T25-SB03 (Figure 2). Three samples per boring in the four locations closest to T25-SB03 (i.e., T25-SB-03B, -03D, -03E, and -03G) were initially submitted for PCB analysis, starting at 7 to 8 feet, just above where PCBs were highest at T25-SB03, and extending to 10 feet, just below where PCBs were highest at T25-SB03. Additional samples were triggered for PCB analysis at borings T25-SB-03E and T25-SB-03F following review of preliminary PCB data. Sample results for PCB delineation borings (i.e., T25-SB-03B, T25-SB-03D, T25-SB-03E, T25-SB-03F, and T25-SB-03G) are presented in Table 4 and shown in Figure 5.

Total PCB concentrations were below 50,000 µg/kg at T25-SB-03B (north of T25-SB03), T25-SB-03D (west of T25-SB03), and at T25-SB-03G (south of T25-SB03). PCB concentrations exceeded 50,000 µg/kg in samples from the two stations east (landward) of T25-SB03, as follows:

- **T25-SB-03E:** Total PCB concentrations in the 8- to 9-foot interval and 9- to 10-foot interval (279,100 µg/kg and 644,300 µg/kg, respectively) exceeded 50,000 µg/kg. PCB concentrations in the sample intervals above (7 to 8 feet) and below (10 to 11 feet) were both below 50,000 µg/kg.
- **T25-SB-03F:** Total PCB concentrations in the 9- to 10-foot interval (68,610 µg/kg) exceeded 50,000 µg/kg. PCB concentrations in the sample intervals above (7 to 8 feet and 8 to 9 feet) and below (10 to 11 feet) were below 50,000 µg/kg.

The Port will work with EPA Region 10 during cleanup design to characterize, remove, and dispose of PCB remediation waste in accordance with TSCA regulations (40 CFR 761.61) and consistent with the CERCLA cleanup.

5 Sediment Analytical Results

Nearshore sediments will be dredged as part of the habitat restoration project. The sampling design included characterization testing of the planned dredge prism and of the post-dredge (Z-layer) surface for five cores (T25-SC01 through T25-SC05). Four additional cores (T25-SC06 through T25-SC09) were collected to support further contaminant nature and extent characterization. All results were compared to SMS and East Waterway RALs; however, only three samples (dredge intervals from T25-SC02, T25-SC03, and T25-SC04) were screened for waste disposal. Because the sediment portion of the site is part of the East Waterway Superfund Site, it was presumed that the top 4 to 5 feet of the dredge prism was contaminated and would be sent to an upland landfill once removed. Some additional sediment intervals were analyzed below the post-dredge surface based on coordination with EPA to further map the nature and extent of contamination in this area. This section summarizes the analytical results for the nearshore samples, including discussion of any exceedances of applicable screening criteria. Table 2 includes a summary of sediment cores, samples collected and analyzed, design subgrade elevation, and sample interval elevation.

5.1 Dredge Intervals

The QAPP included five sediment cores (T25-SC01 through T25-SC05) in the preliminary design dredge areas. As discussed in Section 2.2, these cores were collected farther out from the target locations due to the presence of substantial debris. Cores T25-SC01 and T25-SC05 were collected outside of the dredge area and therefore did not have any sample representative of waste disposal material. In addition, T25-SC01 encountered refusal due to debris and was able to collect no more than 2 feet of sediment. The excavation material from cores T25-SC02, T25-SC03, and T25-SC04 were tested for TCLP metals, SVOCs, PAHs, and PCB Aroclors. TPH was analyzed in samples from cores T25-SC03 and T25-SC04. All samples were screened against RCRA criteria and results are presented in Table 7. No concentrations were above RCRA criteria. Figure 3 shows wood debris, design subgrade, and native sediment elevation alongside dredge interval chemical testing results (Table 7) and post-dredge and nature and extent chemical results (Table 8). This information is also summarized in Table 9, along with estimated dredge depth.

5.2 Post-Dredge Surface Intervals

Cores T25-SC02 and T25-SC04 had sufficient penetration to acquire Z-layer samples that provide information on post-dredge surface concentrations. Table 8 presents the full SMS suite of analyses plus dioxin/furans analyzed on the Z-layer samples as well as results from subsequent testing of

archived depth intervals following consultation with EPA. The following is a summary of the results of cores intended to best characterize post-dredge conditions:

- **T25-SC01:** Due to debris and refusal, only 2 feet of sediment was collected farther offshore than the target location. Following consultation with EPA, no testing was conducted at T25-SC01.
- **T25-SC02:** The Z-layer sample results (4.6 to 5.6 feet) were below SMS criteria with the exception of a slight SCO exceedance of acenaphthene. Following consultation with EPA, no further testing was completed on deeper samples from T25-SC02.
- **T25-SC03:** Core T25-SC03 did not achieve the post-dredge surface (6.9 feet). The bottom-most layer sample results (5.7 to 6.2 feet) were below all SMS and the dioxin/furan EWRAL. To better define the extent of contamination, the uppermost poorly graded sand interval was tested for the full suite of testing (see Section 5.3).
- **T25-SC04:** The Z-layer sample results (4 to 5 feet) exceeded the CSL for mercury and total PCBs, exceeded the SCO for 1,2,4-trichlorobenzene, and exceeded the EWRAL for dioxin/furan TEQ. Each of the two intervals below the Z-layer (5 to 6 feet and 6 to 6.7 feet) were subsequently analyzed and exceeded either the SCO or CSL for several PAHs and PCBs and exceeded the dioxin/furan EWRAL. Concentrations decreased with depth, but no additional intervals were available to verify the bottom of contamination.
- **T25-SC05:** This core was located outside of the dredge design area and is discussed in Section 5.3.

5.3 Nature and Extent

Cores T25-SC06 through T25-SC09 were collected to provide additional information on the nature and extent of contamination within and adjacent to the preliminary habitat design footprint. When possible, cores within the project footprint were collected deeper than the Z-layer elevation. Cores T25-SC07, T25-SC08, and T25-SC09 were located outside of the project boundary. These cores were sampled in 1-foot increments from top to bottom and were analyzed using a tiered approach.

Following review of preliminary data, in consultation with EPA, the next interval down was triggered for analytes that exceeded SMS in the interval above. Besides nature and extent testing of cores T25-SC06 through T25-SC09, additional testing was conducted in T25-SC03 to refine the vertical extent of contamination above the post-dredge elevation and in T25-SC05, which did not reach the design elevation. The following is a summary of the results of nature and extent testing presented in Table 8:

- **T25-SC03:** Following testing of the Z-layer from 5.7 to 6.2 feet (which had no exceedances of any SCO values), the uppermost poorly graded sand interval was tested for the full suite of analytes. The sample interval from 3.7 to 4.7 feet contained 2,4-dimethylphenol, several PAHs, and PCBs above the SCO, plus anthracene above the CSL. The sample interval from 4.7 to 5.7

feet contained fluoranthene, phenanthrene, and PCBs above the AET SCO and CSL. The vertical extent of contamination was therefore located at the original Z-layer (5.7 to 6.2 feet).

- **T25-SC05:** The uppermost interval of this core (0 to 1 foot) contained PCBs above the SCO. The only other interval in this core was collected (1 to 2 feet), which also contained PCBs above the SCO.
- **T25-SC06:** T25-SC06 is located slightly outside the dredge boundary. The equivalent Z-layer elevation from the nearby area within the dredge boundary was tested (1.5 to 2.5 feet), which exceeded the CSL for 1,2,4-trichlorobenzene, 1,4-dichlorobenzene, pyrene, and total PCBs. Fluoranthene, total benzofluoranthenes, and total high-molecular-weight PAHs exceeded the SCO, and dioxin/furan TEQ exceeded the EWRAL. The lowest interval (2.5 to 3.3 feet) was triggered for analysis and exceeded the CSL for total PCBs, 1,2,4-trichlorobenzene, and 1,4-dichlorobenzene, and exceeded the dioxin/furan TEQ EWRAL. No additional deeper intervals were available for subsequent testing. Wood debris was present from 1.5 to 3.3 feet (Table 9).
- **T25-SC07:** T25-SC07 was located outside the dredge boundary. Testing of the uppermost interval was conducted (0 to 1 foot), which contained elevated PCBs above the SCO and dioxin/furans above the EWRAL. Anthropogenic debris was present at 3.5 feet, so the next interval below was tested (5 to 6 feet), which contained elevated anthracene above the CSL, fluoranthene above SCO, PCBs above SCO AET, and dioxin/furans above the EWRAL. The next interval below (6 to 7 feet) contained elevated mercury above the CSL, elevated PCBs, and dioxin/furans, but not PAHs. No deeper sample intervals were available. Each of the lowest intervals contained 15% TOC.
- **T25-SC08:** T25-SC08 is located outside the dredge boundary. Testing of the uppermost interval (0 to 1 foot) contained elevated PAHs above the SCO and CSL, PCBs above SCO, and dioxin/furans above the EWRAL. A hydrocarbon-like odor was present at 6 feet, so the next interval below the odor was tested (7 to 8 feet), which contained elevated 2,4-dimethylphenol above the CSL, numerous PAHs above the CSL, PCBs above the SCO, and dioxin/furans above the EWRAL. PAH exceedances were present in each of the next two intervals down (8 to 9 feet and 9 to 10 feet), but no other exceedances were below 8 feet.
- **T25-SC09:** T25-SC09 is located outside the dredge boundary. Elevated concentrations were present for mercury above CSL and PAHs above the CSL in the 0- to 1-foot, 2- to 3-foot, and 3- to 4-foot intervals. Dioxin/furans were present above the EWRAL in the 0- to 1-foot interval but not in the 2- to 3-foot interval or 3- to 4-foot interval.

6 Geotechnical Results

Geotechnical testing for index parameters was conducted on 24 samples from four stations: T25-SB02, T25-SB03, T25-SB04A, and T25-SB05. The following sections provide a summary of the results for moisture content, grain size, specific gravity, and density. Results are provided in Table 10.

6.1 Moisture Content

Moisture content was tested on 21 laboratory samples (Table 10). The average moisture content was 27.5%, ranging from 8.9% to 38.3%.

6.2 Grain Size

Sieve analysis was conducted on 22 laboratory samples (excluding two duplicates; Table 10). Of these samples, 19 were determined to consist mainly of coarse-grained particles (sand and gravel) and three of fine-grained particles (silt and clay). Two of the three fine-grained samples were located at depth (below 40 feet) in boring T25-SB03, while the third was shallow at T25-SB05 (8 to 9 feet). Gravel was detected in only four samples that exceeded 5% and occurred exclusively in the near-surface samples having depth intervals fewer than 10 feet. All samples were determined to be non-plastic.

6.3 Specific Gravity

Specific gravity of upland boring testing is presented in Table 10. Four sediment samples were also tested for specific gravity (Table 8). Upland specific gravities ranged between 2.60 and 2.74, with an average of 2.67 for 22 samples tested. Sediment specific gravities ranged from 2.36 to 2.65.

6.4 Density

Wet density and dry density test results are presented in Table 10. Twenty-one samples had an average dry density of 91.4 pounds per cubic foot (pcf), with a minimum of 77.5 pcf and a maximum of 118.6 pcf. Those same samples had an average wet density of 116 pcf, with a minimum of 105 pcf and a maximum of 129 pcf.

7 Next Steps

In 2021, the Port anticipates the following possible actions associated with the proposed T-25S habitat restoration project:

- Conduct supplemental sediment sampling in coordination with EPA Region 10, potentially under the current ASAOC
- If the Port decides to move forward with the restoration project, develop an ASAOC amendment, a new ASAOC, or other regulatory document with EPA to support cleanup design for areas within the T-25S Project Boundary
- Install a new oil/water separator near the southern property boundary (i.e., at T25-SB-16)
- Conduct habitat restoration design activities

8 References

- Anchor QEA and Windward (Anchor QEA, LLC, and Windward Environmental, LLC), 2019. *Quality Assurance Project Plan: Soil and Subsurface Sediment Characterization*. Prepared for Port of Seattle, Seattle, Washington. January 2019.
- Anchor QEA, 2020. *Terminal 25 Phase 2 Quality Assurance Project Plan Addendum*. Prepared for the Port of Seattle. July 2020.
- EPA (U.S. Environmental Protection Agency), 2002. Guidance for Quality Assurance Project Plans. QA/G-5. EPA/240/R-02/009. Office of Environmental Information, U.S. Environmental Protection Agency, Washington, DC.
- EPA, 2016. National Functional Guidelines for High Resolution Superfund Methods Data Review. Office of Superfund Remediation and Technology Innovation. EPA-542-B-16-001. April 2016.
- EPA, 2017a. National Functional Guidelines for Inorganic Superfund Methods Data Review. Office of Superfund Remediation and Technology Innovation. EPA-540-R-2017-001; OLEM 9355.0-135. January 2017.
- EPA, 2017b. National Functional Guidelines for Organic Superfund Methods Data Review. Office of Superfund Remediation and Technology Innovation. EPA-540-R-2017-002; OLEM 9355.0-136. January 2017.
- Windward and Anchor QEA, 2014. *East Waterway Operable Unit Supplemental Remedial Investigation and Feasibility Study, Final Supplemental Remedial Investigation Report*. Prepared for U.S. Environmental Protection Agency. January 2014.

Tables

Table 1
Upland Soil Boring Samples and Analyses

Location ID	Coordinates		Elevation (ft MLLW)	Design Subgrade Elevation (ft MLLW)	Estimated Excavation Depth (ft bgs)	Sample ID	Sample Interval (ft bgs)	Designation	Analyses								
	Easting	Northing							Metals	SVOCs	PAHs	D/F	PCBs	TCLP Metals	TPH	TOC	TS
T25-SB-03A	1267751	212463	14.9	7.1	7.8	T25-SB-03A-0-1	0 - 1	Archive									
						T25-SB-03A-1-2	1 - 2	Archive									
						T25-SB-03A-2-3	2 - 3	Archive									
						T25-SB-03A-3-4	3 - 4	Archive									
						T25-SB-03A-4-5	4 - 5	Archive									
						T25-SB-03A-5-6	5 - 6	Archive									
						T25-SB-03A-6-7	6 - 7	Archive									
						T25-SB-03A-7-8	7 - 8	Archive									
						T25-SB-03A-8-9	8 - 9	Archive; Post-Excavation Surface									
						T25-SB-03A-9-10	9 - 10	Archive									
						T25-SB-03A-10-11	10 - 11	Archive									
						T25-SB-03A-11-12	11 - 12	Archive									
						T25-SB-03A-13-14	13 - 14	Archive									
						T25-SB-03A-14-15	14 - 15	Archive									
						T25-SB-03A-15-16	15 - 16	Archive									
						T25-SB-03A-16-17	16 - 17	Archive									
						T25-SB-03A-17-18	17 - 18	Archive									
						T25-SB-03A-18-19	18 - 19	Archive									
						T25-SB-03A-19-20	19 - 20	Archive									
T25-SB-03B	1267749	212439	15.3	7.7	7.6	T25-SB-03B-0-1	0 - 1	Archive									
						T25-SB-03B-1-2	1 - 2	Archive									
						T25-SB-03B-2-3	2 - 3	Archive									
						T25-SB-03B-3-4	3 - 4	Archive									
						T25-SB-03B-4-5	4 - 5	Archive									
						T25-SB-03B-5-6	5 - 6	Archive									
						T25-SB-03B-6-7	6 - 7	Archive									
						T25-SB-03B-7-8	7 - 8	PCB Delineation				X			X	X	
						T25-SB-03B-8-9	8 - 9	PCB Delineation; Post-Excavation Surface			X			X	X		
						T25-SB-03B-9-10	9 - 10	PCB Delineation			X			X	X		
						T25-SB-03B-13-14	13 - 14	Archive									
						T25-SB-03B-14-15	14 - 15	Archive									
						T25-SB-03B-15-16	15 - 16	Archive									
						T25-SB-03B-16-17	16 - 17	Archive									
						T25-SB-03B-17-18	17 - 18	Archive									
						T25-SB-03B-18-19	18 - 19	Archive									
						T25-SB-03B-19-20	19 - 20	Archive									
T25-SB-03BB	1267746	212439	15.4	7.7	7.6	T25-SB-03BB-10-11	10 - 11	Archive									
						T25-SB-03BB-11-12	11 - 12	Archive									
						T25-SB-03BB-12-13	12 - 13	Archive									

Table 1**Upland Soil Boring Samples and Analyses**

Location ID	Coordinates		Elevation (ft MLLW)	Design Subgrade Elevation (ft MLLW)	Estimated Excavation Depth (ft bgs)	Sample ID	Sample Interval (ft bgs)	Designation	Analyses								
	Easting	Northing							Metals	SVOCs	PAHs	D/F	PCBs	TCLP Metals	TPH	TOC	TS
T25-SB08	1267536	212430	16.391	4.1	12.4	T25-SB08-0-12	0 - 12	Excavation		X	X		X	X	X	X	X
						T25-SB08-10-12	10 - 12	Archive									
						T25-SB08-12-14	12 - 14	Post-Excavation Surface	X	X	X	X	X			X	X
						T25-SB08-14.2-14.3	14.2 - 14.3	Archive									
						T25-SB08-14-16	14 - 16	Archive									
						T25-SB08-16-18	16 - 18	Archive									
						T25-SB08-17.2-17.3	17.2 - 17.3	Archive									
T25-SB09	1267692	212374	15.63	7.1	7.6	T25-SB09-0-8	0 - 8	Excavation		X	X		X	X	X	X	X
						T25-SB09-8-9.1	8 - 9.1	Post-Excavation Surface	X	X	X	X	X			X	X
						T25-SB09-9.1-10	9.1 - 10	Triggered archive	X	X	X	X	X			X	X
						T25-SB09-9.9-10	9.9 - 10	Archive									
						T25-SB09-10-13	10 - 13	Triggered archive					X				
						T25-SB09-15.5-15.6	15.5 - 15.6	Archive									
						T25-SB09-15-17	15 - 17	Archive									
T25-SB10	1267921	212294	16.396	13.5	3.0	T25-SB09-17-19	17 - 19	Archive									
						T25-SB09-19-20	19 - 20	Archive									
						T25-SB10-0-2	0 - 2	Post-Excavation Surface	X	X	X	X	X			X	X
						T25-SB10-2-4	2 - 4	Archive									
						T25-SB10-4-6	4 - 6	Archive									
						T25-SB10-6-8	6 - 8	Archive									
						T25-SB10-8-10	8 - 10	Archive									
T25-SB11	1267637	212234	17.021	8.7	8.5	T25-SB10-9.5-9.6	9.5 - 9.6	Archive									
						T25-SB10-10.2-10.3	10.2 - 10.3	Archive									
						T25-SB10-10-12	10 - 12	Archive									
						T25-SB10-12-14	12 - 14	Archive									
						T25-SB10-14-16	14 - 16	Archive									
						T25-SB10-16-18	16 - 18	Archive									
T25-SB12	1267990	212682	16.569	15.4	1.0	T25-SB10-18-20	18 - 20	Archive								X	X
						T25-SB11-0-9	0 - 9	Excavation		X	X		X	X	X	X	X
						T25-SB11-9-11	9 - 11	Post-Excavation Surface	X	X	X	X	X			X	X
						T25-SB11-11-14	11 - 14	Archive									
						T25-SB11-14-16	14 - 16	Archive									
						T25-SB11-16-18	16 - 18	Archive									
						T25-SB11-18-20	18 - 20	Archive									
T25-SB12	1267990	212682	16.569	15.4	1.0	T25-SB12-0-2	0 - 2	Post-Excavation Surface	X	X	X	X	X			X	X
						T25-SB12-2-4	2 - 4	Archive									
						T25-SB12-4-6	4 - 6	Archive									
						T25-SB12-6-8	6 - 8	Archive									
						T25-SB12-8-10	8 - 10	Archive									
						T25-SB12-10-12	10 - 12	Archive									
						T25-SB12-12-13.5	12 - 13.5	Archive									

Table 1
Upland Soil Boring Samples and Analyses

Location ID	Coordinates		Elevation (ft MLLW)	Design Subgrade Elevation (ft MLLW)	Estimated Excavation Depth (ft bgs)	Sample ID	Sample Interval (ft bgs)	Designation	Analyses								
	Easting	Northing							Metals	SVOCs	PAHs	D/F	PCBs	TCLP Metals	TPH	TOC	TS
T25-SB13	1267986	212440	14.936	14.0	1.0	T25-SB13-0-2	0 - 2	Post-Excavation Surface	X	X	X	X	X			X	X
						T25-SB13-2-4	2 - 4	Archive									
						T25-SB13-4-6	4 - 6	Archive									
						T25-SB13-6-8	6 - 8	Archive									
						T25-SB13-8-10	8 - 10	Archive									
						T25-SB13-10-12	10 - 12	Archive									
						T25-SB13-12-14	12 - 14	Archive									
T25-SB14	1268163	212611	15.087	15.4	1.0	T25-SB14-0-3	0 - 3	Archive									
						T25-SB14-3-5	3 - 5	Post-Excavation Surface	X	X	X	X	X			X	X
						T25-SB14-5-7	5 - 7	Archive									
						T25-SB14-7-9	7 - 9	Archive									
						T25-SB14-9-11	9 - 11	Archive									
						T25-SB15-0-2	0 - 2	Post-Excavation Surface	X	X	X	X	X			X	X
T25-SB15	1268106	212395	16.636	14.0	1.0	T25-SB15-2-4	2 - 4	Archive									
						T25-SB15-4-6	4 - 6	Archive									
						T25-SB15-6-8	6 - 8	Archive									
						T25-SB15-8-10	8 - 10	Archive									
						T25-SB-16-0-10	0 - 10	Excavation		X	X		X	X	X		X
T25-SB-16	1267690	212269	17.0	7.3	9.7	T25-SB-16-10-11	10 - 11	Archive; Post-Excavation Surface									
						T25-SB-16-11-12	11 - 12	Archive									
						T25-SB-16-12-13	12 - 13	Archive									
						T25-SB-16-13-14	13 - 14	Archive									
						T25-SB-16-14-15	14 - 15	Archive									
						T25-SB-16-15-16	15 - 16	Archive									
						T25-SB-16-16-17	16 - 17	Archive									
						T25-SB-16-17-18	17 - 18	Archive									
						T25-SB-16-18-19	18 - 19	Archive									
						T25-SB-16-19-20	19 - 20	Archive									

Notes:

Coordinates are in North American Datum of 1983 (NAD83) Washington State Plane North, U.S. Feet.

1. Geotechnical analyses included standard penetration test (SPT), water content, density, specific gravity, and grain size.

bgs: below ground surface

D/F: dioxin/furans

ft: feet

ID: identification

MLLW: mean lower low water

PAH: polycyclic aromatic hydrocarbon

PCB: polychlorinated biphenyl Aroclor

SVOC: semivolatile organic compound

TCLP: toxicity characteristic leaching procedure

TOC: total organic carbon

TPH: total petroleum hydrocarbons

TS: total solids

Table 2
Sediment Core Samples and Analyses

Location ID	Coordinates		Drive Penetration (ft)	Recovery (ft)	Distance from Target (ft)	Design Subgrade Elevation (ft MLLW)	Estimated Dredge Depth (ft)	Sample ID	Depth (ft)	Analyses													
	Easting	Northing								Metals	TCLP Metals	Mercury	SVOCs	PAHs	D/F	PCBs	TPH	TOC	TS	SG	MC	GS	Archive
T25-SC08	1267625	212882	12.0	10.6	8.0	-- ^a	-- ^a	T25-SC08-0-1	0 - 1	X		X	X	X	X	X		X	X			X	
								T25-SC08-1-2	1 - 2														X
								T25-SC08-2-3	2 - 3														X
								T25-SC08-3-4	3 - 4														X
								T25-SC08-4-5	4 - 5														X
								T25-SC08-5-6	5 - 6														X
								T25-SC08-6-7	6 - 7														X
								T25-SC08-7-8	7 - 8				X	X	X	X		X	X				
								T25-SC08-8-9	8 - 9			X	X	X	X		X	X					
								T25-SC08-9-10	9 - 10				X					X	X				
T25-SC09A	1267739	212899	2.7	1.5	5.6	-- ^a	-- ^a	T25-SC09-0-1	0 - 1														X
T25-SC-09B	1267749	212874	5.0	4.4	31	-- ^a	-- ^a	T25-SC09-1-1.5	1 - 1.5														X
								T25-SC09B-0-1	0 - 1	X		X	X	X	X	X		X	X				X
								T25-SC09B-1-2	1 - 2														
								T25-SC09B-2-3	2 - 3			X	X	X	X			X	X	X	X	X	X
								T25-SC09B-3-4	3 - 4			X		X		X		X	X	X			

Notes:

Coordinates are in North American Datum of 1983 (NAD83) Washington State Plane North, U.S. Feet.

a. Location is outside of proposed dredge area.

b. Design subgrade elevation and estimated dredged depth updated using actual core location.

D/F: dioxin/furans

ft: feet

GS: grain size

ID: identification

MC: moisture content

MLLW: mean lower low water

PAH: polycyclic aromatic hydrocarbon

PCB: polychlorinated biphenyl Aroclor

SG: specific gravity

SVOC: semivolatile organic compound

TCLP: toxicity characteristic leaching procedure

TOC: total organic carbon

TPH: total petroleum hydrocarbons

TS: total solids

Table 3
Upland Boring Excavation Interval Analytical Results

Notes:

Minimum significant figures applied to calculated totals

Detected concentration is greater than MTCA Method A Unrestricted cleanup level

Detected concentration is greater than MTCA Method A Industrial cleanup level

Detected concentration is greater than the TSCA threshold for PCB remediation waste

a. Toxics Substances Control Act (TSCA) threshold for PCB remediation waste

Bold: Detected result

µg/kg: micrograms per kilogram

µg/L: micrograms per liter

CAEPA: California Environmental Protection Agency

cPAH: carcinogenic polycyclic aromatic hydrocarbon

FD: field duplicate sample

ft: feet

ID: identification

J: Estimated value

mg/kg: milligrams per kilogram

MTCA: Model Toxics Control Act

N: normal environmental sample

PCB: polychlorinated biphenyl

RCRA: Resource Conservation and Recovery Act

SO: soil matrix

TCLP: toxicity characteristic leaching procedure

TEQ: Toxic Equivalents Quotient

U: Compound analyzed, but not detected above detection limit

UJ: Compound analyzed, but not detected above estimated detection limit

Table 4**Upland Boring Post-Excavation Surface Interval Analytical Results**

Parameter	Method				Location ID Sample ID Sample Date Depth Sample Type Matrix	T25-SB01 T25-SB01-10-12 01/15/19 10 - 12 ft N SO	T25-SB02 T25-SB02-3-5 01/15/19 3 - 5 ft N SO	T25-SB02 T25-SB02-5-7 01/15/19 5 - 7 ft N SO	T25-SB03 T25-SB03-7.5-9.5 01/18/19 7.5 - 9.5 ft N SO	T25-SB03 T25-SB03-9.5-11.5 01/18/19 9.5 - 11.5 ft N SO	T25-SB03 T25-SB03-11.5-13.5 01/18/19 11.5 - 13.5 ft N SO	T25-SB03 T25-SB03-14.2-16.2 01/18/19 14.2 - 16.2 ft N SO	T25-SB-03B T25-SB-03B-7-8 08/05/20 7 - 8 ft N SO	T25-SB-03B T25-SB-53B-7-8 08/05/20 7 - 8 ft FD SO
		SMS SCO	SMS CSL	AET SCO										
Polycyclic Aromatic Hydrocarbons (mg/kg-OC)														
2-Methylnaphthalene	SW8270D	38	64	--	--	4.9 J	2.04	6.5 U	3.33	--	--	--	--	--
Acenaphthene	SW8270D	16	57	--	--	6.9	12.1	2.8 J	13	--	--	--	--	--
Acenaphthylene	SW8270D	66	66	--	--	5.5 U	4.05	6.5 U	1.91	--	--	--	--	--
Anthracene	SW8270D	220	1200	--	--	4.6 J	24	9	17.3	--	--	--	--	--
Benzo(a)anthracene	SW8270D	110	270	--	--	2.8 J	68.9	20	8.26	--	--	--	--	--
Benzo(a)pyrene	SW8270D	99	210	--	--	5.5 U	76.8	21	5.99 J	--	--	--	--	--
Benzo(g,h,i)perylene	SW8270D	31	78	--	--	5.5 UJ	25.8 J	17	3.41 J	--	--	--	--	--
Chrysene	SW8270D	110	460	--	--	2.9 J	87.2	24	11.8	--	--	--	--	--
Dibenzo(a,h)anthracene	SW8270DSIM	12	33	--	--	1.4 UJ	10.7 J	--	0.884 J	--	--	--	--	--
Dibenzofuran	SW8270D	15	58	--	--	4.7 J	3.53	--	9.77	--	--	--	--	--
Fluoranthene	SW8270D	160	1200	--	--	15	173	42 J	70.9	--	--	--	--	--
Fluorene	SW8270D	23	79	--	--	8	8.5	3.2 J	22.4	--	--	--	--	--
Indeno(1,2,3-c,d)pyrene	SW8270D	34	88	--	--	5.5 UJ	28.6 J	13	2.88 J	--	--	--	--	--
Naphthalene	SW8270D	99	170	--	--	23	2.73	2.3 J	7.6	--	--	--	--	--
Phenanthrene	SW8270D	100	480	--	--	14	120	39	105	--	--	--	--	--
Pyrene	SW8270D	1000	1400	--	--	9.4	172	44 J	51.5	--	--	--	--	--
Total Benzofluoranthenes (b,j,k) (U = 0)	SW8270D	230	450	--	--	11 U	135	31	11.5 J	--	--	--	--	--
Total HPAH (SMS) (U = 0)	SW8270D	960	5300	--	--	31 J	778 J	210 J	167 J	--	--	--	--	--
Total LPAH (SMS) (U = 0)	SW8270D	370	780	--	--	56 J	172	56 J	170	--	--	--	--	--
Polycyclic Aromatic Hydrocarbons (µg/kg)														
2-Methylnaphthalene	SW8270D	--	--	670	670	17.3 J	23	19.4 U	57.3	--	--	--	--	--
Acenaphthene	SW8270D	--	--	500	500	24.1	137	8.4 J	220	--	--	--	--	--
Acenaphthylene	SW8270D	--	--	1300	1300	19.2 U	45.8	19.4 U	32.9	--	--	--	--	--
Anthracene	SW8270D	--	--	960	960	16.1 J	271	27	297	--	--	--	--	--
Benzo(a)anthracene	SW8270D	--	--	1300	1600	9.8 J	779	60.4	142	--	--	--	--	--
Benzo(a)pyrene	SW8270D	--	--	1600	1600	19.2 U	868	63.5	103 J	--	--	--	--	--
Benzo(b,j,k)fluoranthenes	SW8270D	--	--			38.3 U	1530	92.9	197 J	--	--	--	--	--
Benzo(g,h,i)perylene	SW8270D	--	--	670	720	19.2 UJ	291 J	50.7	58.7 J	--	--	--	--	--
Chrysene	SW8270D	--	--	1400	2800	10.2 J	985	71.2	203	--	--	--	--	--
Dibenzo(a,h)anthracene	SW8270DSIM	--	--	230	230	4.8 UJ	121 J	--	15.2 J	--	--	--	--	--
Dibenzofuran	SW8270D	--	--	540	540	16.4 J	39.9	--	168	--	--	--	--	--
Fluoranthene	SW8270D	--	--	1700	2500	54.2	1960	126 J	1220	--	--	--	--	--
Fluorene	SW8270D	--	--	540	540	28.1	96	9.7 J	386	--	--	--	--	--
Indeno(1,2,3-c,d)pyrene	SW8270D	--	--	600	690	19.2 UJ	323 J	39.5	49.6 J	--	--	--	--	--
Naphthalene	SW8270D	--	--	2100	2100	80.8	30.8	7 J	130	--	--	--	--	--
Phenanthrene	SW8270D	--	--	1500	1500	48.3	1360	116	1810	--	--	--	--	--
Pyrene	SW8270D	--	--	2600	3300	33	1940	133 J	885	--	--	--	--	--
Total Benzofluoranthenes (b,j,k) (U = 0)	SW8270D	--	--	3200	3600	38.3 U	1530	92.9	197 J	--	--	--	--	--
Total HPAH (SMS) (U = 0)	SW8270D	--	--	12000	17000	110 J	8800 J	637 J	2870 J	--	--	--	--	--
Total LPAH (SMS) (U = 0)	SW8270D	--	--	5200	5200	197 J	1940	170 J	2900	--	--	--	--	--

Table 4**Upland Boring Post-Excavation Surface Interval Analytical Results**

Parameter	Method	SMS		AET		Location ID Sample ID Sample Date Depth Sample Type Matrix	T25-SB01 T25-SB01-10-12 01/15/19 10 - 12 ft N SO	T25-SB02 T25-SB02-3-5 01/15/19 3 - 5 ft N SO	T25-SB02 T25-SB02-5-7 01/15/19 5 - 7 ft N SO	T25-SB03 T25-SB03-7.5-9.5 01/18/19 7.5 - 9.5 ft N SO	T25-SB03 T25-SB03-9.5-11.5 01/18/19 9.5 - 11.5 ft N SO	T25-SB03 T25-SB03-11.5-13.5 01/18/19 11.5 - 13.5 ft N SO	T25-SB03 T25-SB03-14.2-16.2 01/18/19 14.2 - 16.2 ft N SO	T25-SB03 T25-SB03-14.2-16.2 01/18/19 14.2 - 16.2 ft N SO	T25-SB-03B T25-SB-03B-7-8 08/05/20 7 - 8 ft N SO	T25-SB-03B T25-SB-03B-7-8 08/05/20 7 - 8 ft FD SO
		SCO	CSL	SCO	CSL											
Dioxin/Furans (ng/kg)																
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	E1613B	--	--	--	--		0.071 U	0.736 J	--	16.4 J	--	--	--	--	--	
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	E1613B	--	--	--	--		0.088 U	5.74	--	223	--	--	--	--	--	
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	E1613B	--	--	--	--		0.061 U	4.17	--	236	--	--	--	--	--	
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	E1613B	--	--	--	--		0.059 U	27.7	--	2130	--	--	--	--	--	
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	E1613B	--	--	--	--		0.062 U	9.51	--	1100	--	--	--	--	--	
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	E1613B	--	--	--	--		0.284 J	468	--	9150	--	--	--	--	--	
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	E1613B	--	--	--	--		1.88 J	4120 J	--	8910	--	--	--	--	--	
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	E1613B	--	--	--	--		0.099 U	5.33	--	46 J	--	--	--	--	--	
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	E1613B	--	--	--	--		0.066 U	4.4 J	--	54.1	--	--	--	--	--	
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	E1613B	--	--	--	--		0.061 U	12.9	--	108	--	--	--	--	--	
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	E1613B	--	--	--	--		0.053 U	8.16	--	1380	--	--	--	--	--	
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	E1613B	--	--	--	--		0.054 U	8.26	--	488	--	--	--	--	--	
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	E1613B	--	--	--	--		0.052 U	3.69 J	--	613	--	--	--	--	--	
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	E1613B	--	--	--	--		0.05 U	7.2	--	531	--	--	--	--	--	
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	E1613B	--	--	--	--		0.041 U	62.8	--	1570	--	--	--	--	--	
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	E1613B	--	--	--	--		0.054 U	5.01	--	891	--	--	--	--	--	
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	E1613B	--	--	--	--		0.126 U	102	--	3130	--	--	--	--	--	
Total Dioxin/Furan TEQ 2005 (Mammal) (U = 0)	E1613B	25 ng/kg TEQ	--	--	0.0034 J		24.5 J	--	1000 J	--	--	--	--	--	--	
Total Dioxin/Furan TEQ 2005 (Mammal) (U = 1/2)	E1613B	25 ng/kg TEQ	--	--	0.12 J		24.5 J	--	1000 J	--	--	--	--	--	--	
PCB Aroclors (mg/kg-OC)																
Total PCB Aroclors (SMS Marine 2013) (U = 0)	SW8082A	12	65	--	--		1.1 U	22.1	4.1	3620	530	--	--	629 J	1330 J	
PCB Aroclors (µg/kg)																
Aroclor 1016	SW8082A	--	--	--	--		4 U	19.9 U	3.9 U	78.1 U	770 U	499 U	20 U	2000 U	3990 U	
Aroclor 1221	SW8082A	--	--	--	--		4 U	19.9 U	3.9 U	78.1 U	770 U	499 U	20 U	2000 U	3990 U	
Aroclor 1232	SW8082A	--	--	--	--		4 U	19.9 U	3.9 U	78.1 U	770 U	499 U	20 U	2000 U	3990 U	
Aroclor 1242	SW8082A	--	--	--	--		4 U	19.9 U	3.9 U	78.1 U	770 U	499 U	20 U	2000 U	3990 U	
Aroclor 1248	SW8082A	--	--	--	--		4 U	19.9 U	3.9 U	78.1 U	770 U	499 U	20 U	2000 U	3990 U	
Aroclor 1254	SW8082A	--	--	--	--		4 U	151	7.6	62300	24500	13900 J	269	18400	25200	
Aroclor 1260	SW8082A	--	--	--	--		4 U	98.9	4.6	78.1 U	4290	3030	77.4	2350 J	3790 J	
Aroclor 1262	SW8082A	--	--	--	--		4 U	19.9 U	3.9 U	78.1 U	770 U	499 U	20 U	2000 U	3990 U	
Aroclor 1268	SW8082A	--	--	--	--		4 U	19.9 U	3.9 U	78.1 U	770 U	499 U	20 U	2000 U	3990 U	
Total PCB Aroclors (SMS Marine 2013) (U = 0)	SW8082A	--	--	130	1000		4 U	250	12	62300^a	48000	16900 J	346	20750 J	28990 J	

Table 4**Upland Boring Post-Excavation Surface Interval Analytical Results**

Parameter	Method	SMS SCO	SMS CSL	AET SCO	AET CSL	Location ID	T25-SB-03B	T25-SB-03B	T25-SB-03D	T25-SB-03D	T25-SB-03D	T25-SB-03E	T25-SB-03E	T25-SB-03E	T25-SB-03E	T25-SB-03E
						Sample ID	T25-SB-03B-8-9	T25-SB-03B-9-10	T25-SB-03D-7-8	T25-SB-03D-8-9	T25-SB-03D-9-10	T25-SB-03E-7-8	T25-SB-03E-8-9	T25-SB-03E-9-10	T25-SB-03E-10-11	
						Sample Date	08/05/20	08/05/20	08/05/20	08/05/20	08/05/20	08/06/20	08/06/20	08/06/20	08/06/20	
						Depth	8 - 9 ft	9 - 10 ft	7 - 8 ft	N	SO	N	SO	N	SO	
Conventional Parameters (percent)						Sample Type										
Total organic carbon	SW9060A	--	--	--	--	Matrix										
Total solids	SM2540G	--	--	--	--		5.7	24.5	0.18	0.3	1.13	1.13	15.4	24.6	48.4	
Metals (mg/kg)																
Arsenic	SW6020A	57	93	57	93		--	--	--	--	--	--	--	--	--	--
Cadmium	SW6020A	5.1	6.7	5.1	6.7		--	--	--	--	--	--	--	--	--	--
Chromium	SW6020A	260	270	260	270		--	--	--	--	--	--	--	--	--	--
Copper	SW6020A	390	390	390	390		--	--	--	--	--	--	--	--	--	--
Lead	SW6020A	450	530	450	530		--	--	--	--	--	--	--	--	--	--
Mercury	SW7471B	0.41	0.59	0.41	0.59		--	--	--	--	--	--	--	--	--	--
Silver	SW6020A	6.1	6.1	6.1	6.1		--	--	--	--	--	--	--	--	--	--
Zinc	SW6020A	410	960	410	960		--	--	--	--	--	--	--	--	--	--
Semivolatile Organics (mg/kg-OC)																
1,2,4-Trichlorobenzene	SW8270DSIM	0.81	1.8	--	--		--	--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene	SW8270DSIM	2.3	2.3	--	--		--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	SW8270DSIM	3.1	9	--	--		--	--	--	--	--	--	--	--	--	--
bis(2-Ethylhexyl)phthalate	SW8270D	47	78	--	--		--	--	--	--	--	--	--	--	--	--
Butylbenzyl phthalate	SW8270D	4.9	64	--	--		--	--	--	--	--	--	--	--	--	--
Diethyl phthalate	SW8270DSIM	61	110	--	--		--	--	--	--	--	--	--	--	--	--
Dimethyl phthalate	SW8270DSIM	53	53	--	--		--	--	--	--	--	--	--	--	--	--
Di-n-butyl phthalate	SW8270D	220	1700	--	--		--	--	--	--	--	--	--	--	--	--
Di-n-octyl phthalate	SW8270D	58	4500	--	--		--	--	--	--	--	--	--	--	--	--
Hexachlorobenzene	SW8270DSIM	0.38	2.3	--	--		--	--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	SW8270DSIM	3.9	6.2	--	--		--	--	--	--	--	--	--	--	--	--
n-Nitrosodiphenylamine	SW8270DSIM	11	11	--	--		--	--	--	--	--	--	--	--	--	--
Semivolatile Organics (µg/kg)																
1,2,4-Trichlorobenzene	SW8270DSIM	--	--	31	51		--	--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene	SW8270DSIM	--	--	35	50		--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	SW8270DSIM	--	--	110	110		--	--	--	--	--	--	--	--	--	--
2,4-Dimethylphenol	SW8270DSIM	29	29	29	29		--	--	--	--	--	--	--	--	--	--
2-Methylphenol (o-Cresol)	SW8270DSIM	63	63	63	63		--	--	--	--	--	--	--	--	--	--
4-Methylphenol (p-Cresol)	SW8270DSIM	670	670	670	670		--	--	--	--	--	--	--	--	--	--
Benzoic acid	SW8270DSIM	650	650	650	650		--	--	--	--	--	--	--	--	--	--
Benzyl alcohol	SW8270DSIM	57	73	57	73		--	--	--	--	--	--	--	--	--	--
bis(2-Ethylhexyl)phthalate	SW8270D	--	--	1300	1900		--	--	--	--	--	--	--	--	--	--
Butylbenzyl phthalate	SW8270D	--	--	63	900		--	--	--	--	--	--	--	--	--	--
Diethyl phthalate	SW8270DSIM	--	--	200	1200		--	--	--	--	--	--	--	--	--	--
Dimethyl phthalate	SW8270DSIM	--	--	71	160		--	--	--	--	--	--	--	--	--	--
Di-n-butyl phthalate	SW8270D	--	--	1400	1400		--	--	--	--	--	--	--	--	--	--
Di-n-octyl phthalate	SW8270D	--	--	6200	6200		--	--	--	--	--	--	--	--	--	--
Hexachlorobenzene	SW8270DSIM	--	--	22	70		--	--	--	--	--	--	--	--	--	--
n-Nitrosodiphenylamine	SW8270DSIM	--	--	28	40		--	--	--	--	--	--	--	--	--	--
Pentachlorophenol	SW8270DSIM	360	690	360	690		--	--	--	--	--	--	--	--	--	--
Phenol	SW8270DSIM	420	1200	420	1200		--	--	--	--	--	--	--	--	--	--

Table 4**Upland Boring Post-Excavation Surface Interval Analytical Results**

Parameter	Method	SMS SCO	SMS CSL	AET SCO	AET CSL	Location ID Sample ID Sample Date Depth Sample Type Matrix	T25-SB-03B T25-SB-03B-8-9 08/05/20 8 - 9 ft N SO	T25-SB-03B T25-SB-03B-9-10 08/05/20 9 - 10 ft N SO	T25-SB-03D T25-SB-03D-7-8 08/05/20 7 - 8 ft N SO	T25-SB-03D T25-SB-03D-8-9 08/05/20 8 - 9 ft N SO	T25-SB-03D T25-SB-03D-9-10 08/05/20 9 - 10 ft N SO	T25-SB-03E T25-SB-03E-7-8 08/06/20 7 - 8 ft N SO	T25-SB-03E T25-SB-03E-8-9 08/06/20 8 - 9 ft N SO	T25-SB-03E T25-SB-03E-9-10 08/06/20 9 - 10 ft N SO	T25-SB-03E T25-SB-03E-10-11 08/06/20 10 - 11 ft N SO			
							Polycyclic Aromatic Hydrocarbons (mg/kg-OC)											
							Polycyclic Aromatic Hydrocarbons (μ g/kg)											
2-Methylnaphthalene	SW8270D	38	64	--	--		--	--	--	--	--	--	--	--	--	--	--	
Acenaphthene	SW8270D	16	57	--	--		--	--	--	--	--	--	--	--	--	--	--	
Acenaphthylene	SW8270D	66	66	--	--		--	--	--	--	--	--	--	--	--	--	--	
Anthracene	SW8270D	220	1200	--	--		--	--	--	--	--	--	--	--	--	--	--	
Benzo(a)anthracene	SW8270D	110	270	--	--		--	--	--	--	--	--	--	--	--	--	--	
Benzo(a)pyrene	SW8270D	99	210	--	--		--	--	--	--	--	--	--	--	--	--	--	
Benzo(g,h,i)perylene	SW8270D	31	78	--	--		--	--	--	--	--	--	--	--	--	--	--	
Chrysene	SW8270D	110	460	--	--		--	--	--	--	--	--	--	--	--	--	--	
Dibenz(a,h)anthracene	SW8270DSIM	12	33	--	--		--	--	--	--	--	--	--	--	--	--	--	
Dibenzofuran	SW8270D	15	58	--	--		--	--	--	--	--	--	--	--	--	--	--	
Fluoranthene	SW8270D	160	1200	--	--		--	--	--	--	--	--	--	--	--	--	--	
Fluorene	SW8270D	23	79	--	--		--	--	--	--	--	--	--	--	--	--	--	
Indeno(1,2,3-c,d)pyrene	SW8270D	34	88	--	--		--	--	--	--	--	--	--	--	--	--	--	
Naphthalene	SW8270D	99	170	--	--		--	--	--	--	--	--	--	--	--	--	--	
Phenanthrene	SW8270D	100	480	--	--		--	--	--	--	--	--	--	--	--	--	--	
Pyrene	SW8270D	1000	1400	--	--		--	--	--	--	--	--	--	--	--	--	--	
Total Benzofluoranthenes (b,j,k) (U = 0)	SW8270D	230	450	--	--		--	--	--	--	--	--	--	--	--	--	--	
Total HPAH (SMS) (U = 0)	SW8270D	960	5300	--	--		--	--	--	--	--	--	--	--	--	--	--	
Total LPAH (SMS) (U = 0)	SW8270D	370	780	--	--		--	--	--	--	--	--	--	--	--	--	--	

Table 4**Upland Boring Post-Excavation Surface Interval Analytical Results**

Parameter	Method	SMS SCO	SMS CSL	AET SCO	AET CSL	Location ID	T25-SB-03B	T25-SB-03B	T25-SB-03D	T25-SB-03D	T25-SB-03D	T25-SB-03E	T25-SB-03E	T25-SB-03E	T25-SB-03E	T25-SB-03E
						Sample ID	T25-SB-03B-8-9	T25-SB-03B-9-10	T25-SB-03D-7-8	T25-SB-03D-8-9	T25-SB-03D-9-10	T25-SB-03E-7-8	T25-SB-03E-8-9	T25-SB-03E-9-10	T25-SB-03E-10-11	
						Sample Date	08/05/20	08/05/20	08/05/20	08/05/20	08/05/20	08/06/20	08/06/20	08/06/20	08/06/20	
						Depth	8 - 9 ft	9 - 10 ft	7 - 8 ft	8 - 9 ft	9 - 10 ft	7 - 8 ft	8 - 9 ft	9 - 10 ft	10 - 11 ft	
						Sample Type	N	N	N	N	N	N	N	N	N	
						Matrix	SO	SO	SO	SO	SO	SO	SO	SO	SO	
Dioxin/Furans (ng/kg)																
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	E1613B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	E1613B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	E1613B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	E1613B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	E1613B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	E1613B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
1,2,3,4,6,7,8-Octachlorodibenzo-p-dioxin (OCDD)	E1613B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	E1613B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	E1613B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	E1613B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	E1613B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	E1613B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	E1613B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	E1613B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	E1613B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	E1613B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
1,2,3,4,6,7,8-Octachlorodibenzofuran (OCDF)	E1613B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Total Dioxin/Furan TEQ 2005 (Mammal) (U = 0)	E1613B	25 ng/kg TEQ	--	--	--	--	--	--	--	--	--	--	--	--	--	
Total Dioxin/Furan TEQ 2005 (Mammal) (U = 1/2)	E1613B	25 ng/kg TEQ	--	--	--	--	--	--	--	--	--	--	--	--	--	
PCB Aroclors (mg/kg-OC)																
Total PCB Aroclors (SMS Marine 2013) (U = 0)	SW8082A	12	65	--	--	3.99 J	32.8	1950 J	92.7 J	1295 J	2728 J	1812 J	2619 J	16.1		
PCB Aroclors (µg/kg)																
Aroclor 1016	SW8082A	--	--	--	--	19.9 U	499 U	160 U	4 U	400 U	400 U	5000 U	5000 U	497 U		
Aroclor 1221	SW8082A	--	--	--	--	19.9 U	499 U	160 U	4 U	400 U	400 U	5000 U	5000 U	497 U		
Aroclor 1232	SW8082A	--	--	--	--	19.9 U	499 U	160 U	4 U	400 U	400 U	5000 U	5000 U	497 U		
Aroclor 1242	SW8082A	--	--	--	--	19.9 U	499 U	160 U	4 U	400 U	400 U	5000 U	5000 U	497 U		
Aroclor 1248	SW8082A	--	--	--	--	19.9 U	499 U	2160 J	122 J	7590 J	17100 J	122000 J	312000 J	497 U		
Aroclor 1254	SW8082A	--	--	--	--	193 J	8030	1150	126	6130	11600	132000	292000	5240		
Aroclor 1260	SW8082A	--	--	--	--	34.2 J	499 U	200	30	908	2130	25100	40300	2570		
Aroclor 1262	SW8082A	--	--	--	--	19.9 U	499 U	160 U	4 U	400 U	400 U	5000 U	5000 U	497 U		
Aroclor 1268	SW8082A	--	--	--	--	19.9 U	499 U	160 U	4 U	400 U	400 U	5000 U	5000 U	497 U		
Total PCB Aroclors (SMS Marine 2013) (U = 0)	SW8082A	--	--	130	1000	227 J	8030	3510 J	278 J	14628 J	30830 J	279100 J	644300 J	7810		

Table 4**Upland Boring Post-Excavation Surface Interval Analytical Results**

Parameter	Method	SMS SCO	SMS CSL	AET SCO	AET CSL	Location ID	T25-SB-03F	T25-SB-03F	T25-SB-03F	T25-SB-03F	T25-SB-03G	T25-SB-03G	T25-SB-03G	T25-SB-03G	T25-SB04B	T25-SB05
						Sample ID	T25-SB-03F-7-8	T25-SB-03F-8-9	T25-SB-03F-9-10	T25-SB-03F-10-11	T25-SB-03G-7-8	T25-SB-03G-8-9	T25-SB-03G-9-10	T25-SB04B-11-13	T25-SB05-4-6	
						Sample Date	08/06/20	08/06/20	08/06/20	08/06/20	08/05/20	08/05/20	08/05/20	01/17/19	01/15/19	
						Depth	7 - 8 ft	8 - 9 ft	9 - 10 ft	10 - 11 ft	7 - 8 ft	8 - 9 ft	9 - 10 ft	11 - 13 ft	4 - 6 ft	
						Sample Type	N	N	N	N	N	N	N	N	N	
						Matrix	SO	SO	SO	SO	SO	SO	SO	SO	SO	
Polycyclic Aromatic Hydrocarbons (mg/kg-OC)																
2-Methylnaphthalene	SW8270D	38	64	--	--		--	--	--	--	--	--	--	--	5 J	0.374 J
Acenaphthene	SW8270D	16	57	--	--		--	--	--	--	--	--	--	--	8 J	0.275 J
Acenaphthylene	SW8270D	66	66	--	--		--	--	--	--	--	--	--	--	8.6 U	0.39 J
Anthracene	SW8270D	220	1200	--	--		--	--	--	--	--	--	--	--	3.7 J	0.764
Benzo(a)anthracene	SW8270D	110	270	--	--		--	--	--	--	--	--	--	--	6.9 J	0.844
Benzo(a)pyrene	SW8270D	99	210	--	--		--	--	--	--	--	--	--	--	7.5 J	1.15
Benzo(g,h,i)perylene	SW8270D	31	78	--	--		--	--	--	--	--	--	--	--	6 J	0.589 J
Chrysene	SW8270D	110	460	--	--		--	--	--	--	--	--	--	--	9.2	1.24
Dibeno(a,h)anthracene	SW8270DSIM	12	33	--	--		--	--	--	--	--	--	--	--	1.3 J	0.18 J
Dibenzofuran	SW8270D	15	58	--	--		--	--	--	--	--	--	--	--	3.5 J	0.42 J
Fluoranthene	SW8270D	160	1200	--	--		--	--	--	--	--	--	--	--	24	2.43
Fluorene	SW8270D	23	79	--	--		--	--	--	--	--	--	--	--	4.4 J	0.33 J
Indeno(1,2,3-c,d)pyrene	SW8270D	34	88	--	--		--	--	--	--	--	--	--	--	4.2 J	0.466 J
Naphthalene	SW8270D	99	170	--	--		--	--	--	--	--	--	--	--	13	1.45
Phenanthrene	SW8270D	100	480	--	--		--	--	--	--	--	--	--	--	24	1.73
Pyrene	SW8270D	1000	1400	--	--		--	--	--	--	--	--	--	--	23	2.41
Total Benzofluoranthenes (b,j,k) (U = 0)	SW8270D	230	450	--	--		--	--	--	--	--	--	--	--	13 J	2.43
Total HPAH (SMS) (U = 0)	SW8270D	960	5300	--	--		--	--	--	--	--	--	--	--	95 J	12 J
Total LPAH (SMS) (U = 0)	SW8270D	370	780	--	--		--	--	--	--	--	--	--	--	53 J	4.95 J
Polycyclic Aromatic Hydrocarbons (µg/kg)																
2-Methylnaphthalene	SW8270D	--	--	670	670	--	--	--	--	--	--	--	--	--	11.6 J	16.3 J
Acenaphthene	SW8270D	--	--	500	500	--	--	--	--	--	--	--	--	--	18.4 J	12 J
Acenaphthylene	SW8270D	--	--	1300	1300	--	--	--	--	--	--	--	--	--	19.8 U	17 J
Anthracene	SW8270D	--	--	960	960	--	--	--	--	--	--	--	--	--	8.6 J	33.3
Benzo(a)anthracene	SW8270D	--	--	1300	1600	--	--	--	--	--	--	--	--	--	15.8 J	36.8
Benzo(a)pyrene	SW8270D	--	--	1600	1600	--	--	--	--	--	--	--	--	--	17.2 J	50.3
Benzo(b,j,k)fluoranthenes	SW8270D	--	--			--	--	--	--	--	--	--	--	--	29.7 J	106
Benzo(g,h,i)perylene	SW8270D	--	--	670	720	--	--	--	--	--	--	--	--	--	13.8 J	25.7 J
Chrysene	SW8270D	--	--	1400	2800	--	--	--	--	--	--	--	--	--	21.2	54.1
Dibeno(a,h)anthracene	SW8270DSIM	--	--	230	230	--	--	--	--	--	--	--	--	--	2.9 J	7.8 J
Dibenzofuran	SW8270D	--	--	540	540	--	--	--	--	--	--	--	--	--	8.1 J	18.3 J
Fluoranthene	SW8270D	--	--	1700	2500	--	--	--	--	--	--	--	--	--	54.8	106
Fluorene	SW8270D	--	--	540	540	--	--	--	--	--	--	--	--	--	10.1 J	14.4 J
Indeno(1,2,3-c,d)pyrene	SW8270D	--	--	600	690	--	--	--	--	--	--	--	--	--	9.6 J	20.3 J
Naphthalene	SW8270D	--	--	2100	2100	--	--	--	--	--	--	--	--	--	30.8	63.4
Phenanthrene	SW8270D	--	--	1500	1500	--	--	--	--	--	--	--	--	--	55.1	75.6
Pyrene	SW8270D	--	--	2600	3300	--	--	--	--	--	--	--	--	--	52.6	105
Total Benzofluoranthenes (b,j,k) (U = 0)	SW8270D	--	--	3200	3600	--	--	--	--	--	--	--	--	--	29.7 J	106
Total HPAH (SMS) (U = 0)	SW8270D	--	--	12000	17000	--	--	--	--	--	--	--	--	--	220 J	510 J
Total LPAH (SMS) (U = 0)	SW8270D	--	--	5200	5200	--	--	--	--	--	--	--	--	--	120 J	216 J

Table 4**Upland Boring Post-Excavation Surface Interval Analytical Results**

						Location ID Sample ID Sample Date Depth Sample Type Matrix	T25-SB-03F T25-SB-03F-7-8 08/06/20 7 - 8 ft N SO	T25-SB-03F T25-SB-03F-8-9 08/06/20 8 - 9 ft N SO	T25-SB-03F T25-SB-03F-9-10 08/06/20 9 - 10 ft N SO	T25-SB-03F T25-SB-03F-10-11 08/06/20 10 - 11 ft N SO	T25-SB-03G T25-SB-03G-7-8 08/05/20 7 - 8 ft N SO	T25-SB-03G T25-SB-03G-8-9 08/05/20 8 - 9 ft N SO	T25-SB-03G T25-SB-03G-9-10 08/05/20 9 - 10 ft N SO	T25-SB04B T25-SB04B-11-13 01/17/19 11 - 13 ft N SO	T25-SB05 T25-SB05-4-6 01/15/19 4 - 6 ft N SO
Parameter	Method	SMS SCO	SMS CSL	AET SCO	AET CSL										
Dioxin/Furans (ng/kg)															
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	E1613B	--	--	--	--	--	--	--	--	--	--	--	--	0.559 J	0.127 U
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	E1613B	--	--	--	--	--	--	--	--	--	--	--	--	1.72	0.239 U
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	E1613B	--	--	--	--	--	--	--	--	--	--	--	--	0.986 J	0.149 U
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	E1613B	--	--	--	--	--	--	--	--	--	--	--	--	3.37	0.437 J
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	E1613B	--	--	--	--	--	--	--	--	--	--	--	--	2.05	0.155 U
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	E1613B	--	--	--	--	--	--	--	--	--	--	--	--	78.4	14.7
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	E1613B	--	--	--	--	--	--	--	--	--	--	--	--	616	114
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	E1613B	--	--	--	--	--	--	--	--	--	--	--	--	1.71 J	0.286 J
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	E1613B	--	--	--	--	--	--	--	--	--	--	--	--	1.05 J	0.156 J
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	E1613B	--	--	--	--	--	--	--	--	--	--	--	--	1.16 J	0.141 J
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	E1613B	--	--	--	--	--	--	--	--	--	--	--	--	1.26	0.108 U
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	E1613B	--	--	--	--	--	--	--	--	--	--	--	--	1.16	0.109 U
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	E1613B	--	--	--	--	--	--	--	--	--	--	--	--	0.41 J	0.131 U
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	E1613B	--	--	--	--	--	--	--	--	--	--	--	--	1.51	0.117 U
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	E1613B	--	--	--	--	--	--	--	--	--	--	--	--	14.3	2.74
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	E1613B	--	--	--	--	--	--	--	--	--	--	--	--	0.795 J	0.167 U
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	E1613B	--	--	--	--	--	--	--	--	--	--	--	--	27	13.1
Total Dioxin/Furan TEQ 2005 (Mammal) (U = 0)	E1613B	25 ng/kg TEQ	--	--	--	--	--	--	--	--	--	--	--	5.03 J	0.332 J
Total Dioxin/Furan TEQ 2005 (Mammal) (U = 1/2)	E1613B	25 ng/kg TEQ	--	--	--	--	--	--	--	--	--	--	--	5.03 J	0.554 J
PCB Aroclors (mg/kg-OC)															
Total PCB Aroclors (SMS Marine 2013) (U = 0)	SW8082A	12	65	--	--	2435 J	106 J	5578	0.347 J	2326 J	673 J	850 J	13 J	0.14 J	
PCB Aroclors (µg/kg)															
Aroclor 1016	SW8082A	--	--	--	--	601 U	4 U	4840 U	22.5 U	200 U	99.9 U	200 U	3.9 U	4 U	
Aroclor 1221	SW8082A	--	--	--	--	601 U	4 U	4840 U	22.5 U	200 U	99.9 U	200 U	3.9 U	4 U	
Aroclor 1232	SW8082A	--	--	--	--	601 U	4 U	4840 U	22.5 U	200 U	99.9 U	200 U	3.9 U	4 U	
Aroclor 1242	SW8082A	--	--	--	--	601 U	4 U	4840 U	22.5 U	200 U	99.9 U	200 U	3.9 U	4 U	
Aroclor 1248	SW8082A	--	--	--	--	601 U	27.4 J	4840 U	69.8 J	200 U	99.9 U	200 U	8.4	4 U	
Aroclor 1254	SW8082A	--	--	--	--	3340	30.8	61000	95.2	1350	2270	6610	17.1 J	2.7 J	
Aroclor 1260	SW8082A	--	--	--	--	313 J	5.1 J	7610	26.3	278 J	555 J	1210 J	3.3 J	3.6 J	
Aroclor 1262	SW8082A	--	--	--	--	601 U	4 U	4840 U	22.5 U	200 U	99.9 U	200 U	3.9 U	4 U	
Aroclor 1268	SW8082A	--	--	--	--	601 U	4 U	4840 U	22.5 U	200 U	99.9 U	200 U	3.9 U	4 U	
Total PCB Aroclors (SMS Marine 2013) (U = 0)	SW8082A	--	--	130	1000	3653 J	63.3 J	68610 ^a	191.3 J	1628 J	2825 J	7820 J	29 J	6.3 J	

Table 4**Upland Boring Post-Excavation Surface Interval Analytical Results**

Parameter	Method	Location ID			T25-SB13	T25-SB14	T25-SB15
		Sample ID	T25-SB13-0-2	01/16/19	T25-SB14-3-5	01/16/19	T25-SB15-0-2
		Sample Date		0 - 2 ft	N	01/16/19	0 - 2 ft
		Depth			SO	SO	SO
Parameter	Method	SMS SCO	SMS CSL	AET SCO	AET CSL		
Conventional Parameters (percent)							
Total organic carbon	SW9060A	--	--	--	0.61 J	1.09 J	0.15 J
Total solids	SM2540G	--	--	--	90.87	83.24	91.89
Metals (mg/kg)							
Arsenic	SW6020A	57	93	57	93	3.67 J	5.79 J
Cadmium	SW6020A	5.1	6.7	5.1	6.7	0.09 J	0.05 J
Chromium	SW6020A	260	270	260	270	18.8 J	15.9 J
Copper	SW6020A	390	390	390	390	26.7 J	19.4 J
Lead	SW6020A	450	530	450	530	11.8 J	12 J
Mercury	SW7471B	0.41	0.59	0.41	0.59	0.0125 J	0.017 J
Silver	SW6020A	6.1	6.1	6.1	6.1	0.08 J	0.07 J
Zinc	SW6020A	410	960	410	960	51.6 J	34.6 J
Semivolatile Organics (mg/kg-OC)							
1,2,4-Trichlorobenzene	SW8270DSIM	0.81	1.8	--	--	0.82 U	0.45 U
1,2-Dichlorobenzene	SW8270DSIM	2.3	2.3	--	--	0.82 U	0.45 U
1,4-Dichlorobenzene	SW8270DSIM	3.1	9	--	--	0.82 U	0.45 U
bis(2-Ethylhexyl)phthalate	SW8270D	47	78	--	--	8.1 U	3.51 J
Butylbenzyl phthalate	SW8270D	4.9	64	--	--	3.2 U	1.81 U
Diethyl phthalate	SW8270DSIM	61	110	--	--	3.2 U	1.81 U
Dimethyl phthalate	SW8270DSIM	53	53	--	--	0.82 U	0.45 U
Di-n-butyl phthalate	SW8270D	220	1700	--	--	27	16.2
Di-n-octyl phthalate	SW8270D	58	4500	--	--	3.2 U	1.81 U
Hexachlorobenzene	SW8270DSIM	0.38	2.3	--	--	0.82 U	0.45 U
Hexachlorobutadiene	SW8270DSIM	3.9	6.2	--	--	0.82 U	0.45 U
n-Nitrosodiphenylamine	SW8270DSIM	11	11	--	--	0.82 UJ	0.45 UJ
Semivolatile Organics (µg/kg)							
1,2,4-Trichlorobenzene	SW8270DSIM	--	--	31	51	5 U	4.9 U
1,2-Dichlorobenzene	SW8270DSIM	--	--	35	50	5 U	4.9 U
1,4-Dichlorobenzene	SW8270DSIM	--	--	110	110	5 U	4.9 U
2,4-Dimethylphenol	SW8270DSIM	29	29	29	29	24.8 UJ	24.7 UJ
2-Methylphenol (o-Cresol)	SW8270DSIM	63	63	63	63	5 UJ	4.9 U
4-Methylphenol (p-Cresol)	SW8270DSIM	670	670	670	670	5 UJ	7
Benzoic acid	SW8270DSIM	650	650	650	650	99.1 UJ	76.7 J
Benzyl alcohol	SW8270DSIM	57	73	57	73	19.8 U	19.7 U
bis(2-Ethylhexyl)phthalate	SW8270D	--	--	1300	1900	49.6 U	38.3 J
Butylbenzyl phthalate	SW8270D	--	--	63	900	19.8 U	19.7 U
Diethyl phthalate	SW8270DSIM	--	--	200	1200	19.8 U	19.7 U
Dimethyl phthalate	SW8270DSIM	--	--	71	160	5 U	4.9 U
Di-n-butyl phthalate	SW8270D	--	--	1400	1400	165	177
Di-n-octyl phthalate	SW8270D	--	--	6200	6200	19.8 U	19.7 U
Hexachlorobenzene	SW8270DSIM	--	--	22	70	5 U	4.9 U
n-Nitrosodiphenylamine	SW8270DSIM	--	--	28	40	5 UJ	4.9 UJ
Pentachlorophenol	SW8270DSIM	360	690	360	690	19.8 UJ	4.9 J
Phenol	SW8270DSIM	420	1200	420	1200	5 UJ	7.6 U

Table 4**Upland Boring Post-Excavation Surface Interval Analytical Results**

Parameter	Method	Location ID		T25-SB13 Sample ID Sample Date Depth Sample Type Matrix	T25-SB13 T25-SB13-0-2 01/16/19 0 - 2 ft N SO	T25-SB14 T25-SB14-3-5 01/16/19 3 - 5 ft N SO	T25-SB15 T25-SB15-0-2 01/16/19 0 - 2 ft N SO
		SMS SCO	SMS CSL		AET SCO	AET CSL	
Polycyclic Aromatic Hydrocarbons (mg/kg-OC)							
2-Methylnaphthalene	SW8270D	38	64	--	--	3.2 U	0.61 J
Acenaphthene	SW8270D	16	57	--	--	3.2 U	1.81 U
Acenaphthylene	SW8270D	66	66	--	--	3.2 U	1.81 U
Anthracene	SW8270D	220	1200	--	--	1.3 J	3.03
Benzo(a)anthracene	SW8270D	110	270	--	--	2.3 J	4.75
Benzo(a)pyrene	SW8270D	99	210	--	--	1.8 J	7.7
Benzo(g,h,i)perylene	SW8270D	31	78	--	--	3.2 U	1.87
Chrysene	SW8270D	110	460	--	--	3.7	12.5
Dibenzo(a,h)anthracene	SW8270DSIM	12	33	--	--	0.67 J	2.14 J
Dibenzofuran	SW8270D	15	58	--	--	1 J	0.61 J
Fluoranthene	SW8270D	160	1200	--	--	7.7	8.85
Fluorene	SW8270D	23	79	--	--	3.2 U	1.81 U
Indeno(1,2,3-c,d)pyrene	SW8270D	34	88	--	--	3.2 U	2.33
Naphthalene	SW8270D	99	170	--	--	3.2 U	0.81 J
Phenanthrene	SW8270D	100	480	--	--	7.7	4.66
Pyrene	SW8270D	1000	1400	--	--	6.8	8.61
Total Benzofluoranthenes (b,j,k) (U = 0)	SW8270D	230	450	--	--	4.6 J	27.2
Total HPAH (SMS) (U = 0)	SW8270D	960	5300	--	--	28 J	75.9 J
Total LPAH (SMS) (U = 0)	SW8270D	370	780	--	--	9 J	8.5 J
Polycyclic Aromatic Hydrocarbons (µg/kg)							
2-Methylnaphthalene	SW8270D	--	--	670	670	19.8 U	6.7 J
Acenaphthene	SW8270D	--	--	500	500	19.8 U	19.7 U
Acenaphthylene	SW8270D	--	--	1300	1300	19.8 U	19.7 U
Anthracene	SW8270D	--	--	960	960	7.7 J	33
Benzo(a)anthracene	SW8270D	--	--	1300	1600	13.8 J	51.8
Benzo(a)pyrene	SW8270D	--	--	1600	1600	11.1 J	83.9
Benzo(b,j,k)fluoranthenes	SW8270D	--	--			27.8 J	296
Benzo(g,h,i)perylene	SW8270D	--	--	670	720	19.8 U	20.4
Chrysene	SW8270D	--	--	1400	2800	22.7	136
Dibenzo(a,h)anthracene	SW8270DSIM	--	--	230	230	4.1 J	23.3 J
Dibenzofuran	SW8270D	--	--	540	540	6.1 J	6.7 J
Fluoranthene	SW8270D	--	--	1700	2500	47.1	96.5
Fluorene	SW8270D	--	--	540	540	19.8 U	19.7 U
Indeno(1,2,3-c,d)pyrene	SW8270D	--	--	600	690	19.8 U	25.4
Naphthalene	SW8270D	--	--	2100	2100	19.8 U	8.8 J
Phenanthrene	SW8270D	--	--	1500	1500	47.1	50.8
Pyrene	SW8270D	--	--	2600	3300	41.3	93.8
Total Benzofluoranthenes (b,j,k) (U = 0)	SW8270D	--	--	3200	3600	27.8 J	296
Total HPAH (SMS) (U = 0)	SW8270D	--	--	12000	17000	170 J	827 J
Total LPAH (SMS) (U = 0)	SW8270D	--	--	5200	5200	55 J	93 J
							12 J

Table 4**Upland Boring Post-Excavation Surface Interval Analytical Results**

Parameter	Method	Location ID		T25-SB13 Sample ID Sample Date Depth Sample Type Matrix	T25-SB13 T25-SB13-0-2 01/16/19 0 - 2 ft N SO	T25-SB14 T25-SB14-3-5 01/16/19 3 - 5 ft N SO	T25-SB15 T25-SB15-0-2 01/16/19 0 - 2 ft N SO
		SMS SCO	SMS CSL		AET SCO	AET CSL	
Dioxin/Furans (ng/kg)							
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	E1613B	--	--	--	0.164 J	0.063 U	0.172 J
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	E1613B	--	--	--	0.282 J	0.073 J	0.663 J
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	E1613B	--	--	--	0.212 J	0.132 U	0.829 J
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	E1613B	--	--	--	1.85	0.349 J	8.55
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	E1613B	--	--	--	1.05	0.294 J	3.15
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	E1613B	--	--	--	58.3	7.63	240
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	E1613B	--	--	--	514	63.7	1960
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	E1613B	--	--	--	0.134 J	0.512 J	0.61 J
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	E1613B	--	--	--	0.157 J	0.294 J	0.396 J
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	E1613B	--	--	--	0.257 J	0.17 J	1.39 J
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	E1613B	--	--	--	0.358 J	0.247 J	3.12
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	E1613B	--	--	--	0.246 J	0.207 J	2.72
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	E1613B	--	--	--	0.292 U	0.145 U	1.4
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	E1613B	--	--	--	0.272 J	0.181 J	4.72
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	E1613B	--	--	--	13.7	1.67	396
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	E1613B	--	--	--	0.465 J	0.119 U	4.44
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	E1613B	--	--	--	35.7	3.34	416
Total Dioxin/Furan TEQ 2005 (Mammal) (U = 0)	E1613B	25 ng/kg TEQ	--	--	1.83 J	0.42 J	11 J
Total Dioxin/Furan TEQ 2005 (Mammal) (U = 1/2)	E1613B	25 ng/kg TEQ	--	--	1.84 J	0.47 J	11 J
PCB Aroclors (mg/kg-OC)							
Total PCB Aroclors (SMS Marine 2013) (U = 0)	SW8082A	12	65	--	2.9 J	0.46 J	26
PCB Aroclors (µg/kg)							
Aroclor 1016	SW8082A	--	--	--	3.9 U	4 U	3.8 U
Aroclor 1221	SW8082A	--	--	--	3.9 U	4 U	3.8 U
Aroclor 1232	SW8082A	--	--	--	3.9 U	4 U	3.8 U
Aroclor 1242	SW8082A	--	--	--	3.9 U	4 U	3.8 U
Aroclor 1248	SW8082A	--	--	--	5.6	4 U	3.8 U
Aroclor 1254	SW8082A	--	--	--	9.7	3.7 J	20
Aroclor 1260	SW8082A	--	--	--	2.3 J	1.3 J	18.7
Aroclor 1262	SW8082A	--	--	--	3.9 U	4 U	3.8 U
Aroclor 1268	SW8082A	--	--	--	3.9 U	4 U	3.8 U
Total PCB Aroclors (SMS Marine 2013) (U = 0)	SW8082A	--	--	130	1000	18 J	5 J
							39

Table 4
Upland Boring Post-Excavation Surface Interval Analytical Results

Notes:

Screening level exceedances were applied to OC-normalized results when TOC concentrations were within the normal range (as defined by SCUM [Ecology 2019]). They were applied to dry weight results when TOC was outside of the normal range.

TOC in range (0.5% - 3.5%)

Detected concentration is greater than SMS Marine SCO
Detected concentration is greater than SMS Marine CSL

TOC out of range

Detected concentration is greater than AET Marine SCO
Detected concentration is greater than AET Marine CSL

East Waterway Criteria

Detected concentration is greater than East Waterway Remedial Action Level (EWRAL)

a. Exceeds the Toxics Substances Control Act (TSCA) threshold for PCB remediation waste (50,000 µg/kg)

Bold: Detected result

µg/kg: micrograms per kilogram

AET: Apparent Effects Threshold

CSL: Cleanup Screening Level

ft: feet

HPAH: high molecular weight polycyclic aromatic hydrocarbon

J: Estimated value

LPAH: low molecular weight polycyclic aromatic hydrocarbon

mg/kg: milligrams per kilogram

mg/kg-OC: milligrams per kilogram organic carbon normalized

N: normal environmental sample

ng/kg: nanograms per kilogram

OC: organic carbon

PCB: polychlorinated biphenyl

SCO: Sediment Cleanup Objective

SCUM: Sediment Cleanup User's Manual

SMS: Sediment Management Standards

SO: soil matrix

TEQ: Toxic Equivalents Quotient

TOC: total organic carbon

U: Compound analyzed, but not detected above detection limit

UJ: Compound analyzed, but not detected above estimated detection limit

Table 5

Upland Boring Volatile Organic Compound Analytical Results

Parameter	Method	MTCA		MTCA Industrial	RCRA Screening	Location ID	T25-SB07	T25-SB07	T25-SB09	T25-SB09
		Unrestricted	Industrial			Sample ID	T25-SB07-13.4-13.5 01/15/19 13.4 - 13.5 ft N SO	T25-SB07-16-16.1 01/15/19 16 - 16.1 ft N SO	T25-SB09-9.9-10 01/17/19 9.9 - 10 ft N SO	T25-SB09-15.5-15.6 01/17/19 15.5 - 15.6 ft N SO
						Sample Date	Depth	Sample Type	Matrix	
Volatile Organics (µg/kg)										
1,1,1,2-Tetrachloroethane	SW8260C	--	--	--	--	3.89 U	1.32 U	7.67 U	1.59 U	
1,1,1-Trichloroethane	SW8260C	2000	2000	--	--	3.89 U	1.32 U	7.67 U	1.59 U	
1,1,2,2-Tetrachloroethane	SW8260C	--	--	--	--	3.89 UJ	1.32 U	7.67 U	1.59 U	
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	SW8260C	--	--	--	--	7.78 U	2.63 U	15.3 U	3.18 U	
1,1,2-Trichloroethane	SW8260C	--	--	--	--	3.89 U	1.32 U	7.67 U	1.59 U	
1,1-Dichloroethane	SW8260C	--	--	--	--	3.89 U	1.32 U	7.67 U	1.59 U	
1,1-Dichloroethene	SW8260C	--	--	14000	--	3.89 U	1.32 U	7.67 U	1.59 U	
1,1-Dichloropropene	SW8260C	--	--	--	--	3.89 U	1.32 U	7.67 U	1.59 U	
1,2,3-Trichlorobenzene	SW8260C	--	--	--	--	19.4 UJ	6.58 U	38.3 U	7.95 U	
1,2,3-Trichloropropane	SW8260C	--	--	--	--	7.78 UJ	2.63 U	15.3 U	3.18 U	
1,2,4-Trichlorobenzene	SW8260C	--	--	--	--	19.4 UJ	6.58 U	38.3 U	7.95 U	
1,2,4-Trimethylbenzene	SW8260C	--	--	--	--	3.89 UJ	1.32 U	7.67 U	1.59 U	
1,2-Dibromo-3-chloropropane	SW8260C	--	--	--	--	19.4 UJ	6.58 U	38.3 U	7.95 U	
1,2-Dichlorobenzene	SW8260C	--	--	1000	--	3.89 UJ	1.32 U	7.67 U	1.59 U	
1,2-Dichloroethane	SW8260C	--	--	--	--	3.89 UJ	1.32 U	7.67 U	1.59 U	
1,2-Dichloroethene, cis-	SW8260C	--	--	--	--	3.89 U	1.32 U	2.06 J	1.59 U	
1,2-Dichloroethene, trans-	SW8260C	--	--	--	--	3.89 U	1.32 U	7.67 U	1.59 U	
1,2-Dichloropropane	SW8260C	--	--	--	--	3.89 U	1.32 U	7.67 U	1.59 U	
1,3,5-Trimethylbenzene (Mesitylene)	SW8260C	--	--	--	--	3.89 UJ	1.32 U	7.67 U	1.59 U	
1,3-Dichlorobenzene	SW8260C	--	--	--	--	3.89 UJ	1.32 U	7.67 U	1.59 U	
1,3-Dichloropropane	SW8260C	--	--	--	--	3.89 U	1.32 U	7.67 U	1.59 U	
1,3-Dichloropropene, cis-	SW8260C	--	--	--	--	3.89 U	1.32 U	7.67 U	1.59 U	
1,3-Dichloropropene, trans-	SW8260C	--	--	--	--	3.89 U	1.32 U	7.67 U	1.59 U	
1,4-Dichloro-2-butene, trans-	SW8260C	--	--	--	--	19.4 UJ	6.58 U	38.3 U	7.95 U	
1,4-Dichlorobenzene	SW8260C	--	--	150000	--	3.89 UJ	1.32 U	7.67 U	1.59 U	
2-Chloroethylvinyl ether	SW8260C	--	--	--	--	19.4 U	6.58 U	38.3 U	7.95 U	
2-Chlorotoluene	SW8260C	--	--	--	--	3.89 UJ	1.32 U	7.67 U	1.59 U	
2-Hexanone (Methyl butyl ketone)	SW8260C	--	--	--	--	19.4 UJ	6.58 U	38.3 U	7.95 U	
2-Pentanone	SW8260C	--	--	--	--	19.4 U	6.58 U	38.3 U	7.95 U	
4-Chlorotoluene	SW8260C	--	--	--	--	3.89 UJ	1.32 U	7.67 U	1.59 U	
4-Methyl-2-pentanone (Methyl isobutyl ketone)	SW8260C	--	--	--	--	19.4 U	6.58 U	38.3 U	7.95 U	
Acetone	SW8260C	--	--	--	--	19.4 U	61	3150	32.8	
Acrolein	SW8260C	--	--	--	--	19.4 U	6.58 U	38.3 U	7.95 U	
Acrylonitrile	SW8260C	--	--	--	--	19.4 U	6.58 U	38.3 U	7.95 U	
Benzene	SW8260C	30	30	10000	--	3.89 U	1.32 U	7.08 J	1.59 U	
Bromobenzene	SW8260C	--	--	--	--	3.89 UJ	1.32 U	7.67 U	1.59 U	
Bromochloromethane	SW8260C	--	--	--	--	3.89 U	1.32 U	7.67 U	1.59 U	
Bromodichloromethane	SW8260C	--	--	--	--	3.89 U	1.32 U	7.67 U	1.59 U	
Bromoform (Tribromomethane)	SW8260C	--	--	--	--	3.89 UJ	1.32 U	7.67 U	1.59 U	
Bromomethane (Methyl bromide)	SW8260C	--	--	--	--	3.89 U	1.32 UJ	7.67 U	1.59 U	
Carbon disulfide	SW8260C	--	--	--	--	3.89 UJ	16.8	24.4	5.68	
Carbon tetrachloride (Tetrachloromethane)	SW8260C	--	--	10000	--	3.89 U	1.32 U	7.67 U	1.59 U	
Chlorobenzene	SW8260C	--	--	--	--	3.89 U	1.32 U	7.67 U	1.59 U	

Table 5**Upland Boring Volatile Organic Compound Analytical Results**

Parameter	Method	MTCA Unrestricted	MTCA Industrial	RCRA Screening	Location ID	T25-SB07	T25-SB07	T25-SB09	T25-SB09
					Sample ID	T25-SB07-13.4-13.5 01/15/19 13.4 - 13.5 ft	T25-SB07-16-16.1 01/15/19 16 - 16.1 ft	T25-SB09-9.9-10 01/17/19 9.9 - 10 ft	T25-SB09-15.5-15.6 01/17/19 15.5 - 15.6 ft
Chloroethane	SW8260C	--	--	--		3.89 U	1.32 UJ	7.67 U	1.59 U
Chloroform	SW8260C	--	--	120000		3.89 U	1.32 U	7.67 U	1.59 U
Chloromethane	SW8260C	--	--	--		3.89 U	1.32 U	7.67 U	1.59 U
Cymene, p- (4-Isopropyltoluene)	SW8260C	--	--	--		15700	2.78	72900	1.22 J
Dibromochloromethane	SW8260C	--	--	--		3.89 U	1.32 U	7.67 U	1.59 U
Dibromomethane	SW8260C	--	--	--		3.89 U	1.32 U	7.67 U	1.59 U
Dichlorodifluoromethane	SW8260C	--	--	--		3.89 U	1.32 U	7.67 U	1.59 U
Dichloromethane (Methylene chloride)	SW8260C	20	20	--		7.78 U	2.63 U	15.3 U	3.18 U
Ethyl bromide (Bromoethane)	SW8260C	--	--	--		7.78 U	2.63 U	15.3 U	3.18 U
Ethylbenzene	SW8260C	6000	6000	--		3.89 U	1.32 U	7.67 U	1.59 U
Ethylene dibromide (1,2-Dibromoethane)	SW8260C	5	5	--		3.89 U	1.32 U	7.67 U	1.59 U
Hexachlorobutadiene (Hexachloro-1,3-butadiene)	SW8260C	--	--	10000		19.4 UJ	6.58 U	38.3 U	7.95 U
Isopropylbenzene (Cumene)	SW8260C	--	--	--		3.89 UJ	1.32 U	7.67 U	1.59 U
m,p-Xylene	SW8260C	--	--	--		7.78 U	2.63 U	15.3 U	3.18 U
Methyl ethyl ketone (2-Butanone)	SW8260C	--	--	4000000		19.4 U	6.58 U	124	7.95 U
Methyl iodide (Iodomethane)	SW8260C	--	--	--		3.89 U	1.32 UJ	7.67 UJ	1.59 U
Methyl tert-butyl ether (MTBE)	SW8260C	100	100	--		3.89 U	1.32 U	7.67 U	1.59 U
Naphthalene	SW8260C	5000	5000	--		19.4 UJ	6.58 U	21.3 J	7.95 U
n-Butylbenzene	SW8260C	--	--	--		3.89 UJ	1.32 U	7.67 U	1.59 U
n-Propylbenzene	SW8260C	--	--	--		3.89 UJ	1.32 U	7.67 U	1.59 U
o-Xylene	SW8260C	--	--	--		3.89 U	1.32 U	7.67 U	1.59 U
sec-Butylbenzene	SW8260C	--	--	--		3.89 UJ	1.32 U	7.67 U	1.59 U
Styrene	SW8260C	--	--	--		3.89 U	1.32 U	7.67 U	1.59 U
tert-Butylbenzene	SW8260C	--	--	--		3.89 UJ	1.32 U	7.67 U	1.59 U
Tetrachloroethene (PCE)	SW8260C	50	50	14000		3.89 U	1.32 U	7.67 U	1.59 U
Toluene	SW8260C	7000	7000	--		1.6 J	1.32 U	19.9	1.59 U
Trichloroethene (TCE)	SW8260C	30	30	10000		3.89 U	1.32 U	7.67 U	1.59 U
Trichlorofluoromethane (Fluorotrichloromethane)	SW8260C	--	--	--		3.89 UJ	1.32 U	7.67 U	1.59 U
Vinyl acetate	SW8260C	--	--	--		19.4 U	6.58 U	38.3 U	7.95 U
Vinyl chloride	SW8260C	--	--	4000		3.89 U	1.32 U	7.67 U	1.59 U
Total xylenes	SW8260C	9000	9000	--		7.78 U	2.63 U	15.3 U	3.18 U

Notes:

No screening level exceedances

Volatile organic compounds were only analyzed on samples with elevated photoionization detector readings

Bold: Detected result

µg/kg: micrograms per kilogram

ft: feet

ID: identification

J: Estimated value

MTCA: Model Toxics Control Act

N: normal environmental sample

RCRA: Resource Conservation and Recovery Act

SO: soil matrix

TEQ: Toxic Equivalents Quotient

U: Compound analyzed, but not detected above detection limit

UJ: Compound analyzed, but not detected above estimated detection limit

Table 6
Upland Post-Excavation Summary

Location ID	Post-Excavation Interval (ft bgs)	Chemical Exceedances	Material Type	100% Wood Debris Interval (ft bgs)	Native Contact (ft bgs)
T25-SB01	10 - 12	None	Poorly graded sand	None	17
	12 - 17	N/A	Poorly graded sand with silt		
	17 - 20		Poorly graded sand		
T25-SB02	3 - 5	Fluoranthene, phenanthrene, and PCBs > SCO	Poorly graded sand	17.7 - 18.8	18.8
	5 - 7	None	Poorly graded sand		
	7 - 18.8	N/A	Poorly graded sand		
	18.8 - 25		Poorly graded sand with gravel		
T25-SB03	7.5 - 8.8	Phenanthrene > SCO, PCBs > CSL and TSCA; D/F > EWRAL PCBs > CSL PCBs > CSL PCBs > SCO N/A	Poorly graded sand with silt	13.5 - 14.2	19.0
	8.8 - 9.5		Sandy silt		
	9.5 - 11.5		Sandy silt		
	11.5 - 13.5		Sandy silt		
	14.2 - 16.2		Silty sand		
	15 - 19		Poorly graded sand with silt		
	19 - 41		Poorly graded sand		
	41 - 55		Sandy silt		
	59 - 75		Poorly graded sand		
T25-SB-03A	8 - 9	N/A	Silty sand	12.0 - 13.0	---
	9 - 10	N/A	Silty sand		
	10 - 11	N/A	Silty sand		
	11 - 12	N/A	Silty sand		
	13 - 14	N/A	Silty sand		
	14 - 15	N/A	Silty sand		
	15 - 16	N/A	Poorly graded sand with silt		
	16 - 17	N/A	Poorly graded sand with silt		
	17 - 18	N/A	Poorly graded sand with silt		
	18 - 19	N/A	Poorly graded sand with silt		
	19 - 20	N/A	Poorly graded sand with silt		
T25-SB-03BB	---	---	---	None	---
T25-SB-03C	8 - 9	N/A	Silty sand	14.6 - 15.0	16.0
	9 - 10	N/A	Silty sand		
	10 - 11	N/A	Silty sand		
	11 - 12	N/A	Silty sand		
	12 - 13	N/A	Silty sand		
	13 - 14	N/A	Poorly graded sand with silt		
	14 - 15	N/A	Poorly graded sand with silt		
	15 - 16	N/A	Poorly graded sand with silt		
	16 - 17	N/A	Poorly graded sand with silt		
	17 - 18	N/A	Poorly graded sand		
	18 - 19	N/A	Poorly graded sand		
	19 - 20	N/A	Poorly graded sand		
T25-SB-03D	7 - 8	PCBs > CSL	Poorly graded sand with silt	15.0 - 16.0	18.8
	8 - 9	PCBs > SCO	Poorly graded sand with silt		
	9 - 10	PCBs > CSL	Poorly graded sand with silt		
	14 - 15	N/A	Silty sand		
	16 - 17	N/A	Poorly graded sand with silt		
	17 - 18	N/A	Poorly graded sand with silt		
	18 - 19	N/A	Poorly graded sand with silt		
	19 - 20	N/A	Poorly graded sand		
T25-SB-03DD	---	---	---	13.6 - 14.0	---
T25-SB-03E	7 - 8	PCBs > CSL	Poorly graded sand with silt	10.0 - 14.0	17.1
	8 - 9	PCBs > CSL and TSCA	Silty sand		
	9 - 10	PCBs > CSL and TSCA	Silty sand		
	10 - 11	PCBs > CSL	Organic material		
	11 - 12	N/A	Organic material		
	12 - 13	N/A	Organic material		
	13 - 14	N/A	Organic material		
	14 - 15	N/A	Poorly graded sand with silt		
	15 - 16	N/A	Poorly graded sand with silt		
	16 - 17	N/A	Poorly graded sand with silt		
	17 - 18	N/A	Poorly graded sand		
	18 - 19	N/A	Poorly graded sand		
T25-SB-03F	7 - 8	PCBs > CSL	Silty sand	10.0 - 15.0	17.9
	8 - 9	None	Poorly graded sand		
	9 - 10	PCBs > CSL and TSCA	Poorly graded sand		
	10 - 11	PCBs > SCO	Organic material		
	11 - 12	N/A	Organic material		
	12 - 13	N/A	Organic material		
	13 - 14	N/A	Organic material		
	14 - 15	N/A	Organic material		
	15 - 16	N/A	Silty sand		
	16 - 17	N/A	Silty sand		
	17 - 18	N/A	Poorly graded sand with silt		
	18 - 19	N/A	Poorly graded sand		
	19 - 20	N/A	Poorly graded sand		

Table 6
Upland Post-Excavation Summary

Location ID	Post-Excavation Interval (ft bgs)	Chemical Exceedances	Material Type	100% Wood Debris Interval (ft bgs)	Native Contact (ft bgs)
T25-SB-03G	7 - 8	PCBs > CSL	Poorly graded sand with silt	14.7 - 15.0	17.7
	8 - 9	PCBs > CSL	Poorly graded sand with silt		
	9 - 10	PCBs > CSL	Silty sand		
	10 - 11	N/A	Silty sand		
	11 - 12	N/A	Silty sand		
	12 - 13	N/A	Silty sand		
	13 - 14	N/A	Silty sand		
	14 - 15	N/A	Silty sand		
	15 - 16	N/A	Poorly graded sand with silt		
	16 - 17	N/A	Poorly graded sand with silt		
	17 - 18	N/A	Poorly graded sand with silt		
	18 - 19	N/A	Poorly graded sand		
	19 - 20	N/A	Poorly graded sand		
T25-SB-03H	8 - 9	N/A	Poorly graded sand	11.3 - 15.0	17.3
	9 - 10	N/A	Silty sand		
	10 - 11	N/A	Silty sand		
	11 - 12	N/A	Organic material		
	12 - 13	N/A	Organic material		
	13 - 14	N/A	Organic material		
	14 - 15	N/A	Organic material		
	15 - 16	N/A	Silty sand		
	16 - 17	N/A	Poorly graded sand with silt		
	17 - 18	N/A	Poorly graded sand		
	18 - 19	N/A	Poorly graded sand		
	19 - 20	N/A	Poorly graded sand		
T25-SB04A	11-13	N/A	Poorly graded sand with gravel	None	16.5
	15-16.5		Poorly graded sand with silt		
	20-21.5		Poorly graded sand		
	24-25		Poorly graded sand		
T25-SB04B	11 - 13	None	Poorly graded sand	None	18.0
	13 - 14.2	N/A	Poorly graded sand		
	14.2 - 18		Silty sand		
	18 - 25		Poorly graded sand		
T25-SB05	4 - 6	None	Sandy silt	None	9.0
	6 - 9	N/A	Poorly graded sand		
	9 - 20		Poorly graded sand		
T25-SB06	0 - 2	Phenanthrene > SCO	Poorly graded sand	12.0 - 14.0	14.0
	2 - 20	N/A			
T25-SB07	8 - 10	None	Poorly graded sand with gravel	13.5 - 15.0	15.0
	10 - 13.5	N/A			
	15 - 25		Poorly graded sand		
T25-SB08	12 - 12.7	Benzyl alcohol > CSL; PCBs > SCO	Sandy silt	9.0 - 9.5 14.7 - 15.3	18.2
	12.7 - 13.9		Silty sand		
	13.9 - 14		Sandy silt		
	14 - 16.5		Silty sand		
	16.5 - 17.3		Poorly graded sand with silt		
	17.3 - 18.2		Poorly graded sand		
	18.2 - 20				
T25-SB09	8 - 9.1	PCBs > SCO	Poorly graded sand	13.0 - 15.0	15.0
	9.1 - 10	Benzoic acid, PCBs > CSL; D/F TEQ > EWRAL	Silty sand		
	10 - 12.2	None	Poorly graded sand		
	12.2 - 13		Silty sand		
	15 - 20	N/A	Poorly graded sand		
T25-SB10	0 - 2	None	Poorly graded sand with gravel	13.5 - 15	15.0
	2 - 5.4	N/A	Silty sand with gravel		
	5.4 - 6.4		Poorly graded sand		
	6.4 - 7		Silty sand with gravel		
	7 - 8.1		Poorly graded sand with silt		
	8.1 - 12		Poorly graded sand		
	12 - 20				
T25-SB11	9 - 10	PCBs > CSL	Poorly graded sand	11 - 12.5	19.0
	10 - 11		Sandy silt		
	11 - 14		Silt with sand		
	14 - 16.5		Silty sand		
	16.5 - 19		Poorly graded sand with silt		
	19 - 20	N/A	Poorly graded sand		

Table 6
Upland Post-Excavation Summary

Location ID	Post-Excavation Interval (ft bgs)	Chemical Exceedances	Material Type	100% Wood Debris Interval (ft bgs)	Native Contact (ft bgs)
T25-SB12	0 - 2	Diethyl phthalate, fluoranthene > CSL; phenanthrene, LPAH > SCO N/A	Poorly graded sand	None	17.5
	2 - 10		Silt with sand		
	10 - 11.3		Poorly graded sand with silt		
	11.3 - 13.1		Silty sand		
	13.1 - 16.3		Poorly graded sand with silt		
	16.3 - 17.5		Poorly graded sand		
	17.5 - 20				
T25-SB13	0 - 1.8	None N/A	Poorly graded sand with gravel	None	15.0
	1.8 - 2		Poorly graded sand		
	2 - 8.5		Sandy silt		
	8.5 - 10		Poorly graded sand with silt		
	10 - 15		Poorly graded sand		
	15 - 20				
T25-SB14	3 - 5	None	Poorly graded sand	None	15.0
	5 - 20	N/A			
T25-SB15	0 - 0.5	Butylbenzylphthalate > SCO N/A	Poorly graded sand with gravel	None	17.0
	0.5 - 2		Poorly graded sand		
	2 - 6.2		Sandy silt		
	6.2 - 15		Silty sand		
	15 - 17		Poorly graded sand		
	17 - 20				
T25-SB-16	10 - 11	N/A	Organic material	10.0 - 12.6	19.0
	11 - 12	N/A	Organic material		
	12 - 13	N/A	Organic material		
	13 - 14	N/A	Silty sand		
	14 - 15	N/A	Silty sand		
	15 - 16	N/A	Poorly graded sand with silt		
	16 - 17	N/A	Silty sand		
	17 - 18	N/A	Silty sand		
	18 - 19	N/A	Poorly graded sand with silt		
	19 - 20	N/A	Poorly graded sand		

Notes:

bgs: below ground surface

CSL: Cleanup Screening Level

D/F: dioxin/furans

EWRAL: East Waterway Remedial Action Level

ft: feet

ID: identification

N/A: Not Analyzed

PCB: polychlorinated biphenyl Aroclor

SCO: Sediment Cleanup Objective

TSCA: Toxic Substances Control Act

Table 7
Sediment Dredge Interval Analytical Results

Notes:

Horizontal coordinate datum is North American Datum of 1983 (NAD83) State Plane Washington North FIPS 4601 (U.S. Survey Feet).

All nondetect results are reported at the reporting limit or, for dioxin/furan analysis, at the estimated detection limit (EDL).

Totals are calculated as the sum of all detected results (U=0). If all results are not detected, the highest limit value is reported as the sum.

Totals are calculated as the sum of all detected results and half of the reporting limit of nondetect results (U=1/2). If all results are not detected, the highest limit value is reported as the sum.

USEPA Stage 2B and 4 data validation was completed by Laboratory Data Consultants (LDC).

Total LPAH are the total of acenaphthene, acenaphthylene, anthracene, fluorene, naphthalene, and phenanthrene. 2-Methylnaphthalene is not included in the sum of LPAHs.

Total HPAH are the total of benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene, chrysene, dibenzo(a,h)anthracene, fluoranthene, indeno(1,2,3-c,d)pyrene, and pyrene.

Total PCB Aroclors (SMS Marine 2013) does not include Aroclor 1262 and 1268.

Dioxin/furan TEQ values were calculated with 2005 World Health Organization (WHO) Toxic Equivalency Factor (TEF) values for mammals.

Bold: Detected result

--: results not reported or not applicable

-- R: result rejected

µg/kg: micrograms per kilogram

µg/L: micrograms per liter

FD: field duplicate sample

ft: feet

HPAH: high molecular weight PAH

ID: identification

J: Estimated value

LPAH: low molecular weight PAH

mg/kg: milligrams per kilogram

N: normal environmental sample

ng/kg: nanograms per kilogram

PCB: polychlorinated biphenyls

RCRA: Resource Conservation and Recovery Act

SE: sediment matrix

SMS: Sediment Management Standards

TCLP: toxicity characteristic leaching procedure

TEQ: Toxic Equivalents Quotient

U: Compound analyzed, but not detected above detection limit

UJ: Compound analyzed, but not detected above estimated detection limit

Table 8**Sediment Analytical Results**

		Location ID	Sample ID	T25-SC02	T25-SC03	T25-SC03	T25-SC03	T25-SC04	T25-SC04	T25-SC04	T25-SC04	T25-SC04	T25-SC04	T25-SC-05		
Parameter	Method	SMS SCO	SMS CSL	AET SCO	AET CSL	Sample Date	T25-SC02-4.6-5.6 03/25/19	T25-SC03-3.7-4.7 03/24/19	T25-SC03-4.7-5.7 03/24/19	T25-SC03-5.7-6.2 03/24/19	T25-SC04-2-3 03/24/19	T25-SC04-4-5 03/24/19	T25-SC04-5-5.6 03/24/19	T25-SC04-5-6 03/24/19	T25-SC04-6-6.7 03/24/19	T25-SC05-0-1 03/26/19
Dioxin Furans (ng/kg)																
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	E1613B	--	--	--	--	0.235 UJ	0.903 U	--	0.195 J	--	1.96 J	--	1.05 U	2.71	0.396 J	
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	E1613B	--	--	--	--	0.298 J	1.24 U	--	0.658 J	--	20.3	--	13 J	14.5	1.82	
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	E1613B	--	--	--	--	0.103 U	1.61 J	--	0.543 J	--	17.1	--	7.08 J	7.33	2.2	
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	E1613B	--	--	--	--	0.325 J	10.9 J	--	3.89	--	108	--	60.7 J	19	10.6	
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	E1613B	--	--	--	--	0.224 J	5.37 J	--	1.93	--	27.4	--	24 J	10.4	5.23	
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	E1613B	--	--	--	--	6.64	222 J	--	105	--	1130	--	920	278	319	
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	E1613B	--	--	--	--	50.1	1730	--	956	--	6110 J	--	5300	1370	2930	
Total Tetrachlorodibenzo-p-dioxin (TCDD)	E1613B	--	--	--	--	4.44 J	3.48 J	--	3.28 J	--	704 J	--	133	292	10.3 J	
Total Pentachlorodibenzo-p-dioxin (PeCDD)	E1613B	--	--	--	--	2.75	12	--	5.6	--	442	--	154	197	12.4	
Total Hexachlorodibenzo-p-dioxin (HxCDD)	E1613B	--	--	--	--	4.74	78.4	--	36.2	--	1230	--	508	228	102	
Total Heptachlorodibenzo-p-dioxin (HpCDD)	E1613B	--	--	--	--	15.8	556	--	308	--	2510	--	1860	608	870	
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	E1613B	--	--	--	--	0.732 J	2.35 J	--	0.526 J	--	7.09 J	--	9.53 J	9.44 J	1.4	
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	E1613B	--	--	--	--	0.411 J	1.69 J	--	0.504 J	--	5.96 J	--	5.67 J	6.51 J	1.12	
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	E1613B	--	--	--	--	0.487 J	2.06 J	--	0.74 J	--	9.78 J	--	7.63 J	8.16	1.78	
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	E1613B	--	--	--	--	0.338 J	6.98 J	--	2.08	--	35.2	--	23.5 J	10.7	5.15	
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	E1613B	--	--	--	--	0.294 J	3.73 J	--	0.804 J	--	17.5	--	15.1 J	10.6 J	1.88	
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	E1613B	--	--	--	--	0.243 U	1.88 J	--	0.873 J	--	15.3	--	10.5 J	2.68	1.24 J	
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	E1613B	--	--	--	--	0.379 J	1.5 J	--	0.461 J	--	10.8	--	23.1 J	13.9	1.45	
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	E1613B	--	--	--	--	3.35	57.7 J	--	24.8	--	321	--	714	203	58	
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	E1613B	--	--	--	--	0.081 U	5.29 J	--	1.58	--	28.5	--	26.8 J	6.41	3.81	
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	E1613B	--	--	--	--	14.8	266	--	121	--	1220	--	3680	366	194	
Total Tetrachlorodibenzofuran (TCDF)	E1613B	--	--	--	--	17.9	28.4	--	16.8	--	273	--	197	224	41.6	
Total Pentachlorodibenzofuran (PeCDF)	E1613B	--	--	--	--	5.86	41.9	--	11.3	--	269	--	380	222	35.8	
Total Hexachlorodibenzofuran (HxCDF)	E1613B	--	--	--	--	4.76	107	--	34.6 J	--	672	--	532	289	90 J	
Total Heptachlorodibenzofuran (HpCDF)	E1613B	--	--	--	--	11.5	262	--	103	--	1230	--	2660	482	199	
Total Dioxin/Furan TEQ 2005 (Mammal) (U = 1/2)	--	25 ng/kg TEQ ²	--	--	--	0.94 J	8.62 J	--	3.84 J	--	66.2 J	--	53 J	33.7 J	10.4 J	
Total Dioxin/Furan TEQ 2005 (Mammal) (U = 0)	--	25 ng/kg TEQ ²	--	--	--	0.8 J	7.55 J	--	3.84 J	--	66.2 J	--	52 J	33.7 J	10.4 J	
PCB Aroclors (µg/kg)																
Aroclor 1016	SW8082A	--	--	--	--	3.9 U	4 U	4 U	4 U	--	39.7 U	--	4 U	4 U	4 U	
Aroclor 1221	SW8082A	--	--	--	--	3.9 U	4 U	4 U	4 U	--	39.7 U	--	4 U	4 U	4 U	
Aroclor 1232	SW8082A	--	--	--	--	3.9 U	4 U	4 U	4 U	--	39.7 U	--	4 U	4 U	4 U	
Aroclor 1242	SW8082A	--	--	--	--	3.9 U	4 U	4 U	4 U	--	39.7 U	--	4 U	4 U	4 U	
Aroclor 1248	SW8082A	--	--	--	--	3.9 U	32.9	35 J	12.9	--	39.7 U	--	44.5	21.4 J	32.4	
Aroclor 1254	SW8082A	--	--	--	--	3.9 U	98.7	93.4 J	50.5	--	541	--	107	54.7 J	92.7	
Aroclor 1260	SW8082A	--	--	--	--	3.9 U	148	123 J	50.6	--	682	--	304	117 J	134	
Aroclor 1262	SW8082A	--	--	--	--	3.9 U	4 U	4 U	4 U	--	39.7 U	--	4 U	4 U	4 U	
Aroclor 1268	SW8082A	--	--	--	--	3.9 U	4 U	4 U	4 U	--	39.7 U	--	4 U	4 U	4 U	
Total PCB Aroclors (SMS Marine 2013) (U = 0)	--	--	--	130	1000	3.9 U	280	250 J	110	--	1220	--	460	190 J	260	
PCB Aroclors (mg/kg-OC)																
Total PCB Aroclors (SMS Marine 2013) (U = 0)	--	12	65	--	--	0.59 U	48	56 J	57	--	66.5	--	11	1.1 J	17	

Table 8**Sediment Analytical Results**

		Location ID	Sample ID	T25-SC08	T25-SC08	T25-SC08	T25-SC08	T25-SC09B	T25-SC09B	T25-SC09B
Parameter	Method	SMS SCO	SMS CSL	AET SCO	AET CSL					
Conventional Parameters (unitless)										
Specific gravity	D854	--	--	--	--	--	--	--	2.36	--
Conventional Parameters (percent)										
Moisture (water) content	D2216	--	--	--	--	--	--	--	128.6	--
Total organic carbon	SW9060A	--	--	--	--	1.09 J	10.2 J	12.7 J	3.3 J	21.8
Total solids	SM2540G	--	--	--	--	42	44.16	48.68 J	53.01 J	24.26
Grain Size (percent)										
Gravel	D422	--	--	--	--	1.7	--	--	1	0.8
Sand	D422	--	--	--	--	31.9	--	--	7.9	13.6
Silt	D422	--	--	--	--	59.3	--	--	78.8	79.1
Clay	D422	--	--	--	--	1.4	--	--	1	2.2
Metals (mg/kg)										
Arsenic	SW6020A	57	93	57	93	13.2	--	--	11.9	--
Cadmium	SW6020A	5.1	6.7	5.1	6.7	0.65	--	--	3.77	--
Chromium	SW6020A	260	270	260	270	28.9	--	--	36.7	--
Copper	SW6020A	390	390	390	390	71.2	--	--	105	--
Lead	SW6020A	450	530	450	530	52.3 J	--	--	391	--
Mercury	SW7471B	0.41	0.59	0.41	0.59	0.235	--	--	1.42	2.35 J
Silver	SW6020A	6.1	6.1	6.1	6.1	0.55 J	--	--	1.73	--
Zinc	SW6020A	410	960	410	960	135 J	--	--	300	--
Semivolatile Organics (mg/kg-OC)										
1,2,4-Trichlorobenzene	SW8270DSIM	0.81	1.8	--	--	0.27 J	0.048 U	0.039 U	--	0.023 U
1,2-Dichlorobenzene	SW8270DSIM	2.3	2.3	--	--	0.45 U	0.048 U	0.039 U	--	0.023 U
1,4-Dichlorobenzene	SW8270DSIM	3.1	9	--	--	1.89	0.174	0.011 J	--	0.022 J
bis(2-Ethylhexyl)phthalate	SW8270D	47	78	--	--	45	0.485 U	0.392 UJ	--	0.228 U
Butylbenzyl phthalate	SW8270D	4.9	64	--	--	1.82 U	0.194 U	0.157 UJ	--	0.0913 U
Diethyl phthalate	SW8270DSIM	61	110	--	--	1.82 U	0.194 U	0.235 U	--	0.0913 U
Dimethyl phthalate	SW8270DSIM	53	53	--	--	0.34 J	0.048 U	0.039 U	--	0.023 U
Di-n-butyl phthalate	SW8270D	220	1700	--	--	647 U	0.194 U	0.157 UJ	--	0.0839 U
Di-n-octyl phthalate	SW8270D	58	4500	--	--	1.82 U	0.194 U	0.157 UJ	--	0.0913 U
Hexachlorobenzene	SW8270DSIM	0.38	2.3	--	--	0.45 U	0.048 U	0.039 U	--	0.023 U
Hexachlorobutadiene (Hexachloro-1,3-butadiene)	SW8270DSIM	3.9	6.2	--	--	0.45 U	0.048 U	0.039 U	--	0.023 U
n-Nitrosodiphenylamine	SW8270DSIM	11	11	--	--	0.45 U	0.048 U	0.039 U	--	0.023 U
Semivolatile Organics (µg/kg)										
1,2,4-Trichlorobenzene	SW8270DSIM	--	--	31	51	2.9 J	4.9 U	5 U	--	5 U
1,2-Dichlorobenzene	SW8270DSIM	--	--	35	50	4.9 U	4.9 U	5 U	--	5 U
1,4-Dichlorobenzene	SW8270DSIM	--	--	110	110	20.6	17.7	1.4 J	--	4.7 J
2,4-Dimethylphenol	SW8270DSIM	29	29	29	29	13 J	76.1	9.1 J	--	15.8 J
2-Methylphenol (o-Cresol)	SW8270DSIM	63	63	63	63	9.5	28.2	7.5	--	5 U
4-Methylphenol (p-Cresol)	SW8270DSIM	670	670	670	670	33	572	65.5	--	31.2
Benzoic acid	SW8270DSIM	650	650	650	650	36 J	152 J	99.6 U	--	309
Benzyl alcohol	SW8270DSIM	57	73	57	73	32.3	19.8 U	19.9 UJ	--	568
bis(2-Ethylhexyl)phthalate	SW8270D	--	--	1300	1900	490	49.5 U	49.8 UJ	--	15.1 J
Butylbenzyl phthalate	SW8270D	--	--	63	900	19.8 U	19.8 U	19.9 UJ	--	49.7 U
Diethyl phthalate	SW8270DSIM	--	--	200	1200	19.8 U	19.8 U	29.9 U	--	19.9 U
Dimethyl phthalate	SW8270DSIM	--	--	71	160	3.7 J	4.9 U	5 U	--	19.8 U
Di-n-butyl phthalate	SW8270D	--	--	1400	1400	70.5 U	19.8 U	19.9 UJ	--	18.3 U
Di-n-octyl phthalate	SW8270D	--	--	6200	6200	19.8 U	19.8 U	19.9 UJ	--	19.8 U
Hexachlorobenzene	SW8270DSIM	--	--	22	70	4.9 U	4.9 U	5 U	--	4.9 U
Hexachlorobutadiene (Hexachloro-1,3-butadiene)	SW8270DSIM	--	--	11	120	4.9 U	4.9 U	5 U	--	4.9 U
n-Nitrosodiphenylamine	SW8270DSIM	--	--	28	40	4.9 U	4.9 U	5 U	--	4.9 U
Pentachlorophenol	SW8270DSIM	360	690	360	690	9.6 J	15.7 J	6.3 J	--	19.9 U
Phenol	SW8270DSIM	420	1200	420	1200	24.2	101	20.4	--	19.8 UJ
									154	85.5

Table 8

Sediment Analytical Results

Parameter	Method	SMS SCO	SMS CSL	AET SCO	AET CSL	Location ID	T25-SC08	T25-SC08	T25-SC08	T25-SC08	T25-SC09B	T25-SC09B	T25-SC09B
						Sample ID T25-SC08-0-1 03/25/19 0 - 1 ft N SE	Sample Date T25-SC08-7-8 03/25/19 7 - 8 ft N SE	Depth T25-SC08-8-9 03/25/19 8 - 9 ft N SE	Sample Type T25-SC08-9-10 03/25/19 9 - 10 ft N SE	Matrix T25-SC09B-0-1 03/26/19 0 - 1 ft N SE	Sample ID T25-SC09B-2-3 03/26/19 2 - 3 ft N SE	Depth T25-SC09B-3-4 03/26/19 3 - 4 ft N SE	
Polycyclic Aromatic Hydrocarbons (mg/kg-OC)													
2-Methylnaphthalene	SW8270D	38	64	--	--	4.61	23.4	5.79 J	33.6 J	0.72	11.7	7.5	
Acenaphthene	SW8270D	16	57	--	--	7.23	84.5	35.5	70.3	6.79	33.7	20.7	
Acenaphthylene	SW8270D	66	66	--	--	26	3.83	1.04 J	5.24	0.592	6	5.11	
Anthracene	SW8270D	220	1200	--	--	60.8	63.2	19.4	81.5	8.67	77.6	86	
Benzo(a)anthracene	SW8270D	110	270	--	--	96.3	59.3	14.1 J	68.2	6.97	80.8	73	
Benzo(a)pyrene	SW8270D	99	210	--	--	--	28.8	8.19 J	28 J	4.3	33.1	26.3	
Benzo(b,j,k)fluoranthenes	SW8270D	--	--	--	--	--	64.9	18.7 J	61.8 J	8.85	68.2	66.2	
Benzo(g,h,i)perylene	SW8270D	31	78	--	--	100 J	3.15	1.44 J	11.4 J	1	2.88	2.84	
Chrysene	SW8270D	110	460	--	--	--	79	20	104	--	100	116	
Dibenzo(a,h)anthracene	SW8270D	12	33	--	--	--	--	--	5.82	--	--	1.32	
Dibenzo(a,h)anthracene	SW8270DSIM	12	33	--	--	39.4	0.848 J	0.761 J	--	0.5	0.712 J	--	
Dibenzofuran	SW8270D	15	58	--	--	9.72	28.3	15.6	--	3	12.8	--	
Fluoranthene	SW8270D	160	1200	--	--	--	332	89	229	--	456 J	310	
Fluorene	SW8270D	23	79	--	--	14.8	53	21.9	53.6	5.18	31.5	29	
Indeno(1,2,3-c,d)pyrene	SW8270D	34	88	--	--	108	3.37	1.8 J	10.9 J	1.07	2.97	3.79	
Naphthalene	SW8270D	99	170	--	--	7.57	432	21	110	1.8	56.9	22.3	
Phenanthrene	SW8270D	100	480	--	--	--	66.3	40.6	81.2	--	73	51.1	
Pyrene	SW8270D	1000	1400	--	--	815	213 J	63.9	150	26.7	277 J	209	
Total Benzofluoranthenes (b,j,k) (U = 0)	--	230	450	--	--	--	64.9	18.7 J	61.8 J	8.85	68.2	66.2	
Total HPAH (SMS) (U = 0)	--	960	5300	--	--	1200 J	780 J	220 J	670 J	50	1000 J	800	
Total LPAH (SMS) (U = 0)	--	370	780	--	--	120	700	139 J	400	23	300	210	
Polycyclic Aromatic Hydrocarbons (µg/kg)													
2-Methylnaphthalene	SW8270D	--	--	670	670	50.2	2390	735 J	1110 J	157	735	417	
Acenaphthene	SW8270D	--	--	500	500	78.8	8620	4510	2320	1480	2120	1150	
Acenaphthylene	SW8270D	--	--	1300	1300	280	391	132 J	173	129	400	284	
Anthracene	SW8270D	--	--	960	960	663	6450	2460	2690	1890	4880	4800	
Benzo(a)anthracene	SW8270D	--	--	1300	1600	1050	6050	1790 J	2250	1520	5080	4060	
Benzo(a)pyrene	SW8270D	--	--	1600	1600	--	2940	1040 J	940 J	930	2080	1460	
Benzo(b,j,k)fluoranthenes	SW8270D	--	--	--	--	--	6620	2380 J	2040 J	1930	4290	3680	
Benzo(g,h,i)perylene	SW8270D	--	--	670	720	1100 J	321	183 J	377 J	220	181	158	
Chrysene	SW8270D	--	--	1400	2800	--	8100	2600	3440	--	6500	6450	
Dibenzo(a,h)anthracene	SW8270D	--	--	230	230	--	--	--	192	--	--	73.4	
Dibenzo(a,h)anthracene	SW8270DSIM	--	--	230	230	429	86.5 J	96.7 J	--	100	44.8 J	--	
Dibenzofuran	SW8270D	--	--	540	540	106	2890	1980	--	660	805	--	
Fluoranthene	SW8270D	--	--	1700	2500	--	33900	11300	7560	--	28700 J	17000	
Fluorene	SW8270D	--	--	540	540	161	5400	2780	1770	1130	1980	1600	
Indeno(1,2,3-c,d)pyrene	SW8270D	--	--	600	690	1180	344	228 J	359 J	234	187	211	
Naphthalene	SW8270D	--	--	2100	2100	82.5	44100	2670	3500	392	3580	1240	
Phenanthrene	SW8270D	--	--	1500	1500	--	6760	5150	2680	--	4590	2840	
Pyrene	SW8270D	--	--	2600	3300	8880	21700 J	8110	4940	5830	17400 J	11600	
Total Benzofluoranthenes (b,j,k) (U = 0)	--	--	--	3200	3600	--	6620	2380 J	2040 J	1930	4290	3680	
Total HPAH (SMS) (U = 0)	--	--	--	12000	17000	13000 J	80000 J	28000 J	22000 J	11000	64000 J	45000	
Total LPAH (SMS) (U = 0)	--	--	--	5200	5200	1300	72000	17700 J	13000	5020	18000	12000	

Table 8
Sediment Analytical Results

		Location ID Sample ID Sample Date Depth Sample Type Matrix	T25-SC08 T25-SC08-0-1 03/25/19 0 - 1 ft N SE	T25-SC08 T25-SC08-7-8 03/25/19 7 - 8 ft N SE	T25-SC08 T25-SC08-8-9 03/25/19 8 - 9 ft N SE	T25-SC08 T25-SC08-9-10 03/25/19 9 - 10 ft N SE	T25-SC-09B T25-SC09B-0-1 03/26/19 0 - 1 ft N SE	T25-SC-09B T25-SC09B-2-3 03/26/19 2 - 3 ft N SE	T25-SC-09B T25-SC09B-3-4 03/26/19 3 - 4 ft N SE
Parameter	Method	SMS SCO SMS CSL AET SCO AET CSL							
Dioxin Furans (ng/kg)									
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	E1613B	--	--	--	--	1.01 U	3.84 J	0.627 U	--
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	E1613B	--	--	--	--	3.96 J	15.1 J	2.21 J	--
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	E1613B	--	--	--	--	5.98 J	8.74 J	0.843 U	--
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	E1613B	--	--	--	--	26.4	26.5 J	3.2 J	--
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	E1613B	--	--	--	--	10.5	16.2 J	2.18	--
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	E1613B	--	--	--	--	1190	364	60.6	--
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	E1613B	--	--	--	--	12300	2090	320	--
Total Tetrachlorodibenzo-p-dioxin (TCDD)	E1613B	--	--	--	--	6.81 J	173	14.6	--
Total Pentachlorodibenzo-p-dioxin (PeCDD)	E1613B	--	--	--	--	18.5	220	12	--
Total Hexachlorodibenzo-p-dioxin (HxCDD)	E1613B	--	--	--	--	346	317	20.3	--
Total Heptachlorodibenzo-p-dioxin (HpCDD)	E1613B	--	--	--	--	4950	674	117	--
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	E1613B	--	--	--	--	2.19 J	50.4 J	5.07	--
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	E1613B	--	--	--	--	1.82 J	8.68 J	2.62 J	--
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	E1613B	--	--	--	--	2.55 J	15.8 J	2.35	--
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	E1613B	--	--	--	--	7.63 J	19 J	2.6	--
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	E1613B	--	--	--	--	2.97 J	19.5 J	1.9 J	--
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	E1613B	--	--	--	--	2.51 UJ	4.51 J	0.816 J	--
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	E1613B	--	--	--	--	3.17 J	31.3 J	1.51	--
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	E1613B	--	--	--	--	91.5	186	28.1	--
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	E1613B	--	--	--	--	6.79 J	9.3 J	2.03	--
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	E1613B	--	--	--	--	334	641	161	--
Total Tetrachlorodibenzofuran (TCDF)	E1613B	--	--	--	--	40	501	78.6	--
Total Pentachlorodibenzofuran (PeCDF)	E1613B	--	--	--	--	50.9 J	911	14.6	--
Total Hexachlorodibenzofuran (HxCDF)	E1613B	--	--	--	--	150 J	494	40.5	--
Total Heptachlorodibenzofuran (HpCDF)	E1613B	--	--	--	--	340	646	114	--
Total Dioxin/Furan TEQ 2005 (Mammal) (U = 1/2)	--	25 ng/kg TEQ ²	--	--	28 J	48 J	6.1 J	--	28.9 J
Total Dioxin/Furan TEQ 2005 (Mammal) (U = 0)	--	25 ng/kg TEQ ²	--	--	27.3 J	48 J	5.8 J	--	28.2 J
Total Dioxin/Furan TEQ 2005 (Mammal) (U = 1)	--	50 ng/kg TEQ ²	--	--	54.6 J	96 J	12.2 J	--	56.1 J
PCB Aroclors (µg/kg)									
Aroclor 1016	SW8082A	--	--	--	--	7.9 U	14.8 U	4 UJ	--
Aroclor 1221	SW8082A	--	--	--	--	7.9 U	14.8 U	4 UJ	--
Aroclor 1232	SW8082A	--	--	--	--	7.9 U	14.8 U	4 UJ	--
Aroclor 1242	SW8082A	--	--	--	--	7.9 U	14.8 U	4 UJ	--
Aroclor 1248	SW8082A	--	--	--	--	45.9 J	40.5	8.8 J	--
Aroclor 1254	SW8082A	--	--	--	--	124 J	88.6	18.2 J	--
Aroclor 1260	SW8082A	--	--	--	--	212 J	222	51.8 J	--
Aroclor 1262	SW8082A	--	--	--	--	7.9 U	14.8 U	4 UJ	--
Aroclor 1268	SW8082A	--	--	--	--	7.9 U	14.8 U	4 UJ	--
Total PCB Aroclors (SMS Marine 2013) (U = 0)	--	--	--	130	1000	380 J	351	79 J	--
Total PCB Aroclors (mg/kg-OC)								120 J	--
Total PCB Aroclors (SMS Marine 2013) (U = 0)	--	12	65	--	--	35 J	3.44	0.62 J	--
								0.57 J	--
									0.072 U

Table 8
Sediment Analytical Results

Notes:

Horizontal coordinate datum is North American Datum of 1983 (NAD83) State Plane Washington North FIPS 4601 (U.S. Survey Feet).

All nondetect results are reported at the reporting limit or, for dioxin/furan analysis, at the estimated detection limit (EDL).

Totals are calculated as the sum of all detected results (U=0). If all results are not detected, the highest limit value is reported as the sum.

Totals are calculated as the sum of all detected results and half of the reporting limit of nondetect results (U=1/2). If all results are not detected, the highest limit value is reported as the sum.

USEPA Stage 2B and 4 data validation was completed by Laboratory Data Consultants (LDC).

Total LPAH are the total of acenaphthene, acenaphthylene, anthracene, fluorene, naphthalene, and phenanthrene. 2-Methylnaphthalene is not included in the sum of LPAHs.

Total HPAH are the total of benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene, chrysene, dibenzo(a,h)anthracene, fluoranthene, indeno(1,2,3-c,d)pyrene, and pyrene.

Total PCB Aroclors (SMS Marine 2013) does not include Aroclor 1262 and 1268.

Dioxin/furan TEQ values were calculated with 2005 World Health Organization (WHO) Toxic Equivalency Factor (TEF) values for mammals.

1. TOC concentrations are elevated (>10%) due to the presence of organic material (i.e., wood waste, white spongy material, etc.). See the boring logs for core descriptions.

2. East Waterway Remedial Action Level (EWRAL); for other benthic COCs, the EWRAL is equivalent to the SMS Marine SCO.

Screening level exceedances were applied to OC-normalized results when TOC exceedances were within the normal range (as defined by SCUM [Ecology 2019]). They were applied to dry weight results when TOC was outside of the normal range.

TOC in range (0.5% - 3.5%)

Detected concentration is greater than SMS Marine SCO

Detected concentration is greater than SMS Marine CSL

TOC out of range

Detected concentration is greater than AET Marine SCO

Detected concentration is greater than AET Marine CSL

East Waterway Criteria

Detected concentration is greater than the East Waterway Remedial Action Level (EWRAL)

Bold: Detected result

--: results not reported or not applicable

µg/kg: micrograms per kilogram

AET: Apparent Effects Threshold

CSL: Cleanup Screening Level

D/F: dioxin furans

FD: field duplicate sample

ft: feet

HPAH: high molecular weight PAH

ID: identification

J: Estimated value

LPAH: low molecular weight PAH

mg/kg: milligrams per kilogram

mg/kg-OC: milligrams per kilogram organic carbon normalized

N: normal environmental sample

ng/kg: nanograms per kilogram

PCB: polychlorinated biphenyls

SCO: Sediment Cleanup Objective

SCUM: Sediment Cleanup User's Manual

SE: sediment matrix

SMS: Sediment Management Standards

TEQ: Toxic Equivalents Quotient

TOC: Total Organic Carbon

U: Compound analyzed, but not detected above detection limit

UJ: Compound analyzed, but not detected above estimated detection limit

Table 9
Sediment Post-Dredge Summary

Location ID	Estimated Dredge Depth (ft)	Interval (ft)	Chemical Exceedances	Material Type	Total Organic Carbon (%)	Wood Debris Interval (ft bgs)	Native Contact (ft bgs)
T25-SC02	4.6	4.6 - 5.6	Acenaphthene > SCO	Poorly graded sand	0.66	N/A	4.1
T25-SC03	6.9	3.7 - 4.7	PAHs, 2,4-dimethylphenol > CSL; PCBs > SCO	Poorly graded sand	0.58	N/A	N/A
		4.7 - 5.7	Phenanthrene > CSL; fluoranthene, PCBs > SCO		0.58		
		5.7 - 6.2	None		0.2		
T25-SC04	4.0	4 - 5	Mercury, PCBs > CSL; 1,2,4-trichlorobenzene > SCO; D/F TEQ > EWRAL	Poorly graded sand	1.84	N/A	N/A
		5 - 6	15 PAHs > CSL; PCBs > SCO; D/F TEQ > EWRAL		3.97		
		6 - 6.7	Phenanthrene, pyrene > CSL; fluoranthene, PCBs > SCO; D/F TEQ > EWRAL		17.4		
T25-SC-05	-- ^a	0 - 1	PCBs > SCO	Silty sand	1.52	N/A	N/A
		1 - 1.5	PCBs > SCO		1.8		
		1.5 - 2		Poorly graded sand			
T25-SC-06	-- ^a	0 - 0.5	1,4-Dichlorobenzene, chrysene, PCBs > SCO; D/F TEQ > EWRAL	Silty sand	N/A	1.5 - 3.3	N/A
		0.5 - 1			Poorly graded sand		
		1.5 - 2.5	1,4-Dichlorobenzene, 1,2,4-trichlorobenzene, pyrene, PCBs > CSL; fluoranthene, benzofluoranthenes, LPAH > SCO; D/F TEQ > EWRAL	Slightly sandy organic material	22.3		
		2.5 - 3.3	1,4-Dichlorobenzene, 1,2,4-trichlorobenzene, PCBs > CSL; D/F TEQ > EWRAL		28.5		
T25-SC07	-- ^a	0 - 1	PCBs > SCO; D/F TEQ > EWRAL	Silt	1.34	N/A	N/A
		2 - 5	N/A		--		
		5 - 6	Anthracene, PCBs > CSL; fluoranthene > SCO; D/F TEQ > EWRAL	Silt with organics	14.7		
		6 - 7	Mercury, PCBs > CSL; D/F TEQ > EWRAL		15		
T25-SC08	-- ^a	0 - 1	3 PAHs > CSL; total LPAH, PCBs > SCO; D/F TEQ > EWRAL	Silt	1.09	N/A	N/A
		1 - 7	N/A		--		
		7 - 8	2,4-Dimethylphenol, 15 PAHs > CSL; PCBs > SCO; D/F TEQ > EWRAL		10.2		
		8 - 9	12 PAHs > CSL; chrysene > SCO		12.7		
		9 - 10	Acenaphthene > CSL; 4 PAHs > SCO		3.3		
T25-SC-09B	-- ^a	0 - 1	Mercury, 5 PAHs > CSL; benzo(a)anthracene > SCO; D/F TEQ > EWRAL	Silt	21.8	N/A	N/A
		1 - 2	N/A		--		
		2 - 3	Mercury, 15 PAHs > CSL		6.29		
		3 - 4	Mercury, 11 PAHs > CSL		5.56		

Table 9
Sediment Post-Dredge Summary

Notes:

a. Location is outside of proposed dredge area.

bgs: below ground surface

CSL: Cleanup Screening Level

D/F: dioxin/furans

EWRAL: East Waterway Remedial Action Level

D/F: dioxin/furans

ft: feet

ID: identification

LPAH: low molecular weight PAH

N/A: Not Analyzed

PAH: polycyclic aromatic hydrocarbon

PCB: polychlorinated biphenyl Aroclor

SCO: Sediment Cleanup Objective

TEQ: Toxic Equivalents Quotient

Table 10
Upland Boring Geotechnical Results

Location ID	T25-SB02	T25-SB02	T25-SB02	T25-SB02	T25-SB03	T25-SB03	T25-SB03	T25-SB03	T25-SB03	T25-SB03	T25-SB03
Sample ID	T25-SB02-0-1.5	T25-SB02-10-11.5	T25-SB02-15-16.5	T25-SB02-20-21.5	T25-SB03-1-2.5	T25-SB03-5-6.5	T25-SB03-15-16.5	T25-SB03-20-21.5	T25-SB03-25-26.5	T25-SB03-25-26.5	
Sample Date	01/15/19	01/15/19	01/15/19	01/15/19	01/18/19	01/18/19	01/18/19	01/18/19	01/18/19	01/18/19	
Depth	0 - 1.5 ft	10 - 11.5 ft	15 - 16.5 ft	20 - 21.5 ft	1 - 2.5 ft	5 - 6.5 ft	15 - 16.5 ft	20 - 21.5 ft	25 - 26.5 ft	25 - 26.5 ft	
Sample Type	N	N	N	N	N	N	N	N	N	FD	
Matrix	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	
Parameter	Method										
Geotechnical Parameters											
Moisture (water) content (percent)	D2216	13.7	35.4	38.1	25.4	9.5	8.9	29	27.6	23	--
Density (dry) (lb/ft ³)	D2937	92.3	84.4	77.5	93.9	113.7	118.6	93	93.2	94.5	--
Density (wet) (lb/ft ³)	D2937	105	114.2	107	117.7	124.5	129.2	120	118.9	116.3	--
Atterberg Limits (percent)	D4318	non-plastic	non-plastic	non-plastic	non-plastic	non-plastic	non-plastic	non-plastic	non-plastic	non-plastic	--
Specific gravity (unitless)	D854	2.61	2.67	2.64	2.7	2.72	2.74	2.71	2.7	2.69	--
Grain Size (percent)											
Gravel	D422	24.8	1.2	4.5	0	15	10.1	0.4	0.2	0	0
Sand	D422	68.8	89.1	88.9	96.5	71.5	79	87.4	93.8	95.4	95.8
Silt	D422	5.4	8.5	5.3	3.5	9.4	8.2	11.1	3.5	3.8	3.3
Clay	D422	0.6	1.3	1.2	0	1.3	1.4	0	0	0.9	0

Notes:

--: Not Analyzed

FD: field duplicate sample

ft: feet

ID: identification

lb/ft³: pounds per cubic foot

N: normal environmental sample

SO: soil matrix

Table 10
Upland Boring Geotechnical Results

Location ID	T25-SB03	T25-SB03	T25-SB03	T25-SB03	T25-SB03	T25-SB03	T25-SB03	T25-SB03	T25-SB03	T25-SB04A	T25-SB04A	
Sample ID	T25-SB03-40-41.5	T25-SB03-45-47	T25-SB03-50-51.5	T25-SB03-53-50-51.5	T25-SB03-55-56.5	T25-SB03-59-60.5	T25-SB03	T25-SB03-70-71.5	T25-SB03-75-76.5	T25-SB04A-5-6.5	T25-SB04A-9-9.7	
Sample Date	01/18/19	01/18/19	01/18/19	01/18/19	01/18/19	01/18/19	01/18/19	01/18/19	01/18/19	01/16/19	01/16/19	
Depth	40 - 41.5 ft	45 - 47 ft	50 - 51.5 ft	50 - 51.5 ft	55 - 56.5 ft	59 - 60.5 ft	N	70 - 71.5 ft	75 - 76.5 ft	5 - 6.5 ft	9 - 9.7 ft	
Sample Type	N	N	N	FD	N	N	SO	N	N	N	N	
Matrix	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	
Parameter	Method											
Geotechnical Parameters												
Moisture (water) content (percent)	D2216	37.6	35.4	36.1	--	29.5	23.6	23.2	30.6	--	30.7	
Density (dry) (lb/ft ³)	D2937	80.3	81.2	81.9	--	88.4	93.3	97.7	89	--	88.9	
Density (wet) (lb/ft ³)	D2937	110.6	109.9	111.4	--	114.4	115.3	120.3	116.3	--	116.2	
Atterberg Limits (percent)	D4318	non-plastic	non-plastic	non-plastic	--	non-plastic	non-plastic	non-plastic	non-plastic	non-plastic	non-plastic	
Specific gravity (unitless)	D854	2.65	2.66	2.65	--	2.69	2.65	2.68	2.68	2.72	2.6	
Grain Size (percent)												
Gravel	D422	0	0	0.1	0	0	0	0	0	3.8	15.9	
Sand	D422	45.6	66	42.2	46.6	67.9	90.4	73.2	78.1	90.3	76.4	
Silt	D422	50.4	30.9	52.5	49.7	28.2	7	22.8	17.9	4.4	7.8	
Clay	D422	2	2	1.7	1.3	1.9	0.9	2	1	0.8	0	

Notes:

--: Not Analyzed

FD: field duplicate sample

ft: feet

ID: identification

lb/ft³: pounds per cubic foot

N: normal environmental sample

SO: soil matrix

Table 10
Upland Boring Geotechnical Results

Location ID	T25-SB04A	T25-SB04A	T25-SB04A	T25-SB05
Sample ID	T25-SB04A-15-16.5	T25-SB04A-20-21.5	T25-SB04A-24-25	T25-SB05-8-9
Sample Date	01/16/19	01/16/19	01/16/19	01/15/19
Depth	15 - 16.5 ft	20 - 21.5 ft	24 - 25 ft	8 - 9 ft
Sample Type	N	N	N	N
Matrix	SO	SO	SO	SO
Parameter	Method			
Geotechnical Parameters				
Moisture (water) content (percent)	D2216	31.5	26.8	24.3
Density (dry) (lb/ft ³)	D2937	89.8	91.5	94.5
Density (wet) (lb/ft ³)	D2937	118.1	115.9	117.5
Atterberg Limits (percent)	D4318	non-plastic	non-plastic	non-plastic
Specific gravity (unitless)	D854	2.66	2.7	2.68
Grain Size (percent)				
Gravel	D422	1.5	0	0
Sand	D422	76.8	95.2	93.3
Silt	D422	19.9	4.8	5.8
Clay	D422	0.8	0	0.9
				3.7

Notes:

--: Not Analyzed

FD: field duplicate sample

ft: feet

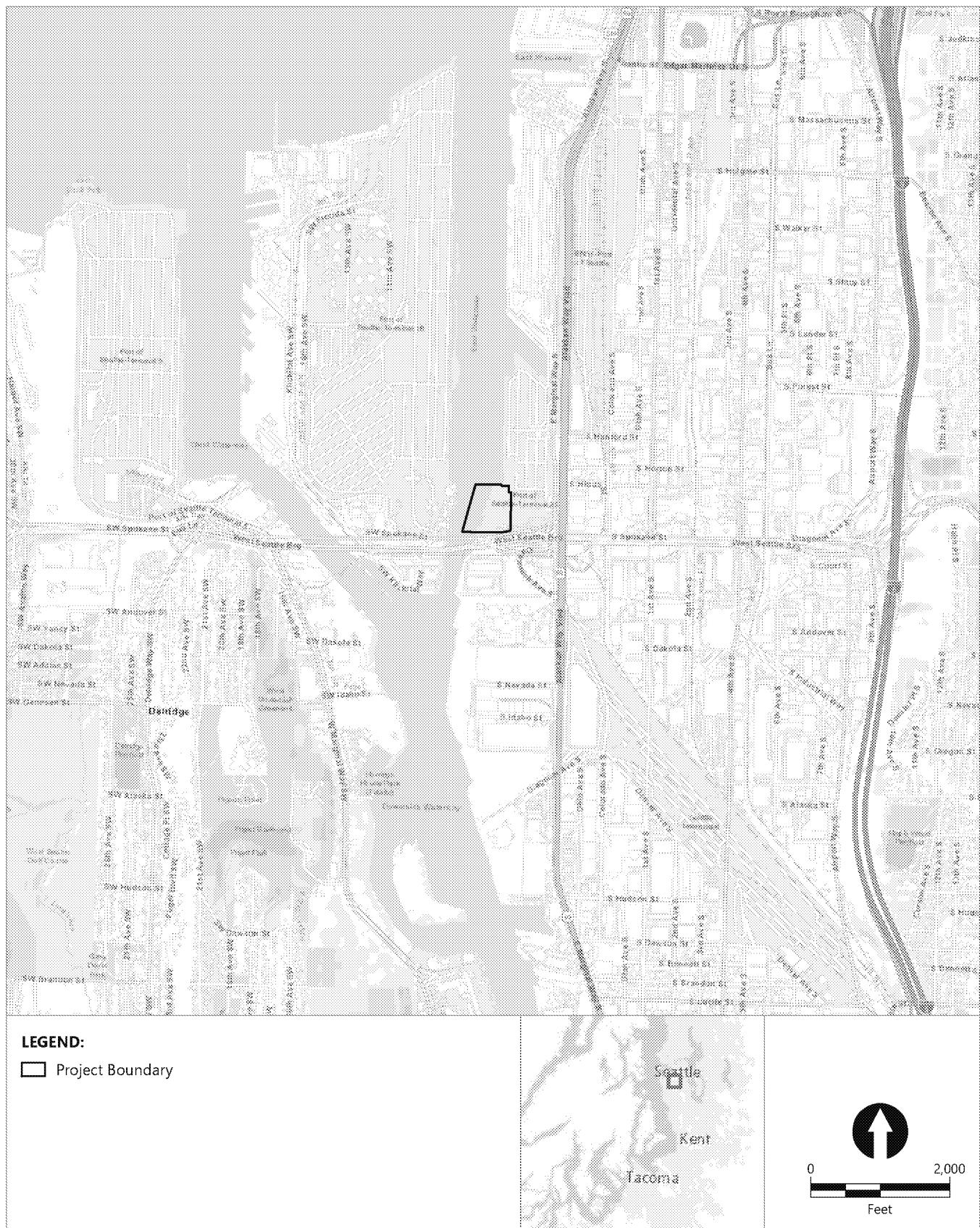
ID: identification

lb/ft³: pounds per cubic foot

N: normal environmental sample

SO: soil matrix

Figures



Publish Date: 2021/01/26, 9:52 PM | User: adowell
 Filepath: \Yomas\gis\Jobs\PortofSeattle_0003\SD01_T25_Wetlands\Map\DataReport\AQ_PoS_SD01_T25_VicinityMap_DR.rwv



Figure 1
Vicinity Map
 Data Report: Soil and Subsurface Sediment Characterization
 Port of Seattle T-25 South Design Characterization



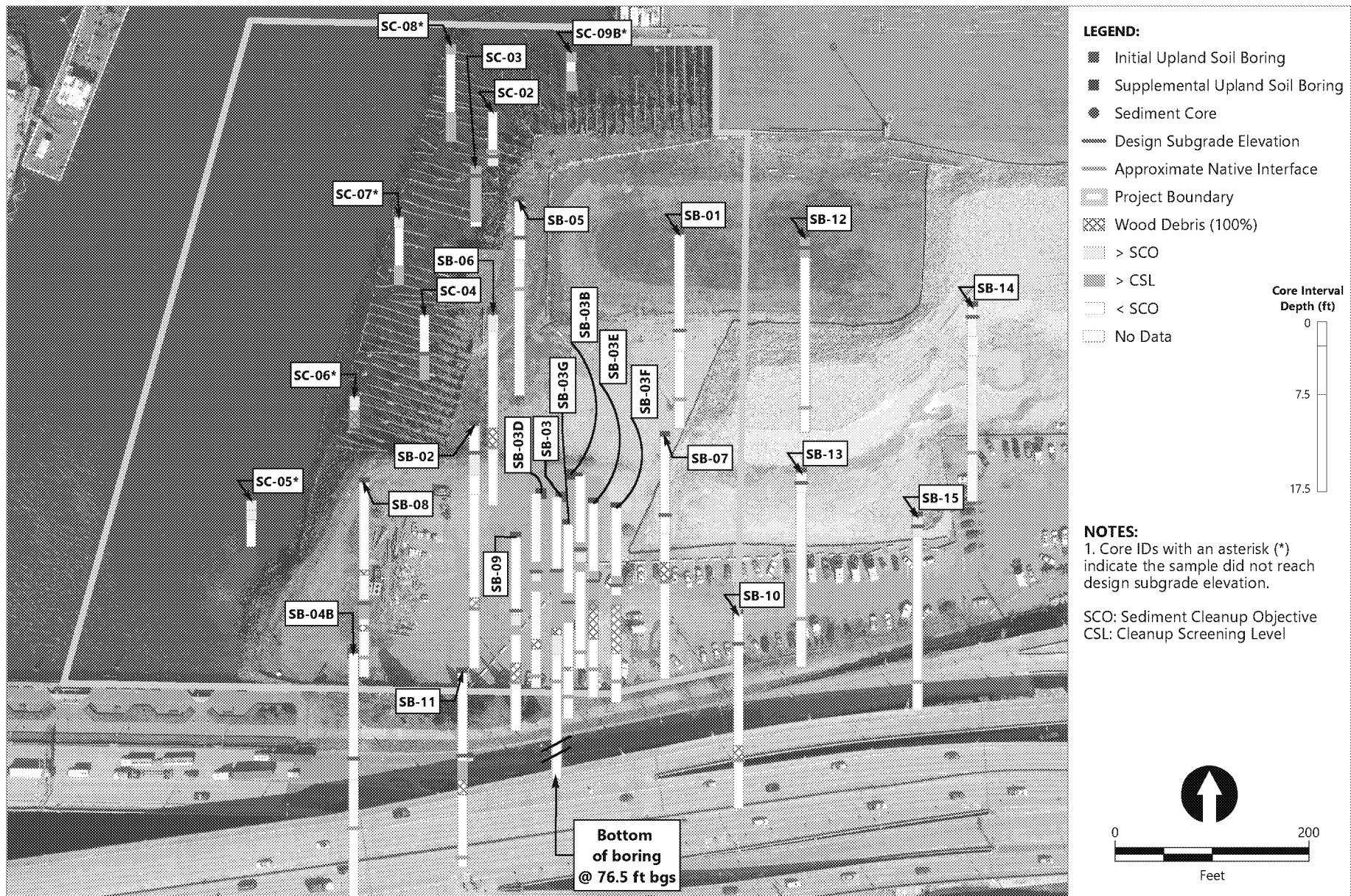
Publish Date: 2021/01/26, 3:58 PM | User: adowell
 Filepath: \\veracrypt\Jobs\PortofSeattle_0007\SD01_T25_Wetlands\Maps\Datasheets\AQ_PoS_SD01_T25_ActualSampling_201903.DR.mxd



Figure 2

Actual Sampling Locations

Data Report: Soil and Subsurface Sediment Characterization
 Port of Seattle T-25 South Design Characterization

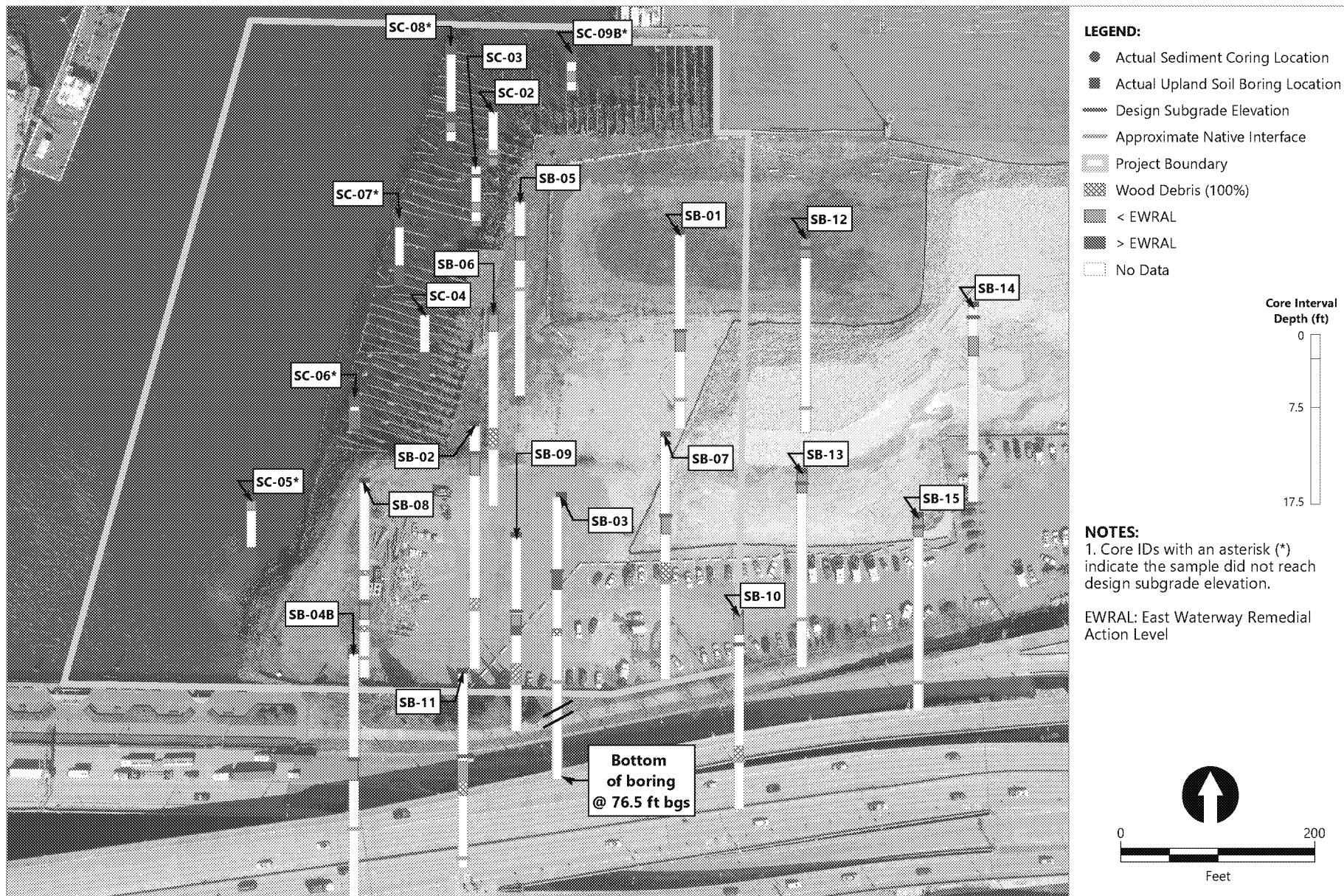


Publish Date: 2021/01/26, 3:57 PM | User: adowell
Filepath: \\wcm\asqa\Jobs\PortofSeattle_0603\SD01_T25_Wetland\Maps\DatasReport_SoilSedimentCharacterization\AQ_Figure62_UplandShorelineInvestigationResults.mxd



Figure 3
Upland and Shoreline Investigation Results

Data Report: Soil and Sediment Characterization
Port of Seattle T-25 South Design Characterization

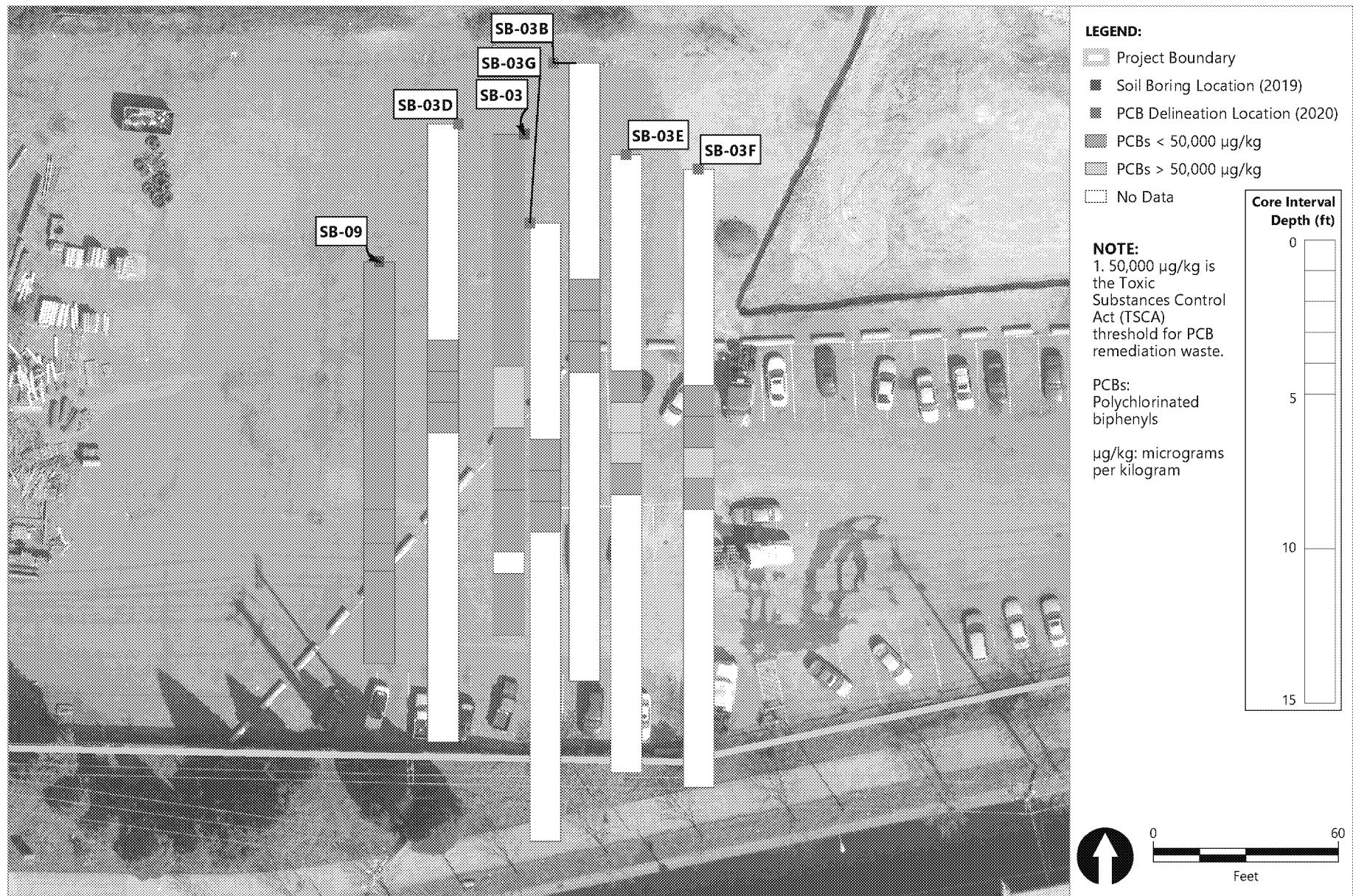


Publish Date: 2021/01/26, 3:57 PM | User: adowell
 Filepath: \\wcmad\qas\Jobs\PortofSeattle_0603\SD01_T25_WetlandMaps\DatasReport_SoilSedimentCharacterization\AQ_Figure64_DioxinFQs.mxd



Figure 4
Upland and Shoreline Investigation Dioxin/Furan Results

Data Report: Soil and Sediment Characterization
 Port of Seattle T-25 South Design Characterization

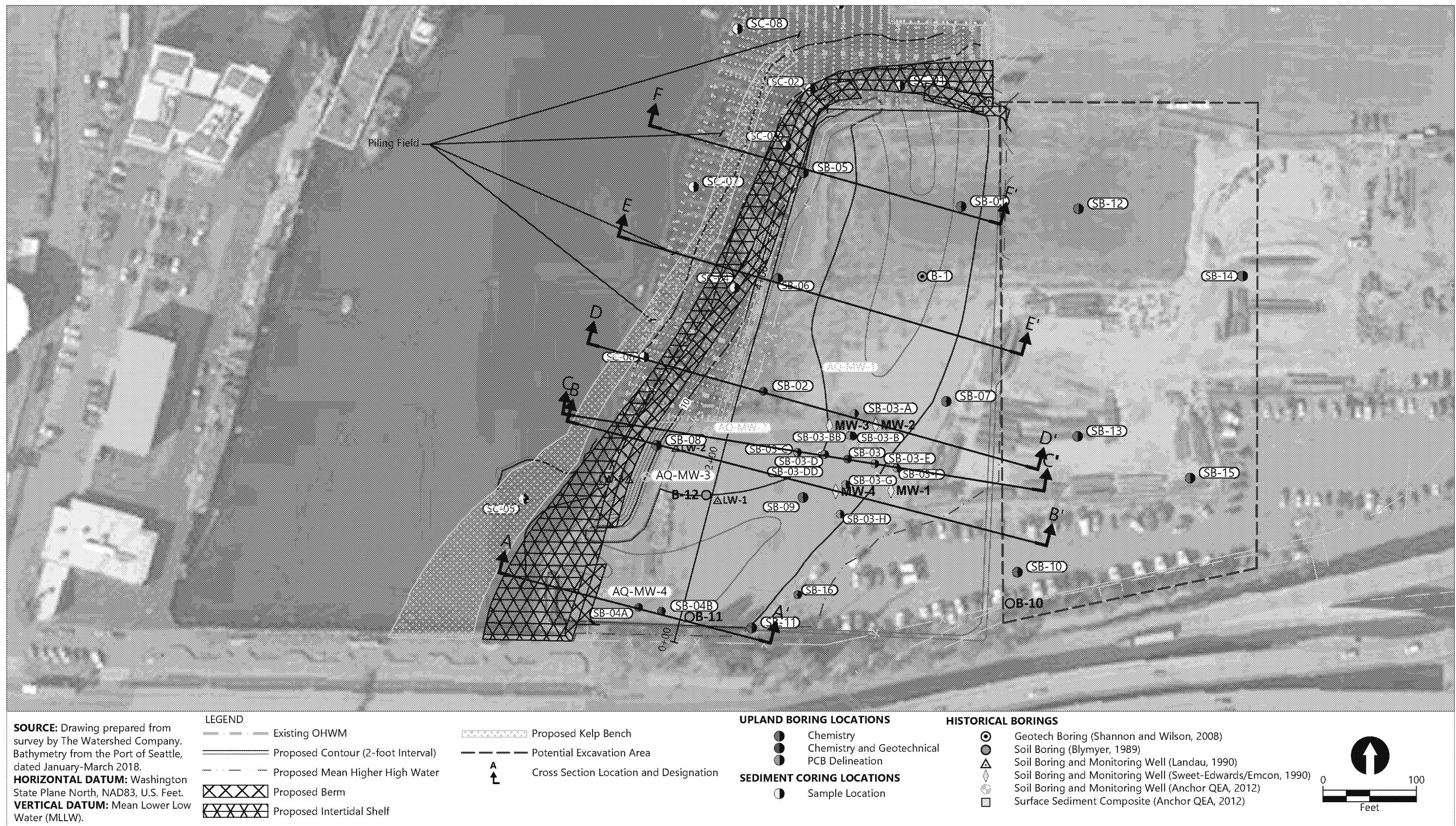


Publish Date: 2021/01/26, 3:57 PM | User: adowell
 Filepath: \\wcm\c\$\qa\Jobs\PortofSeattle_0003\SD01_T25_Wetland\Maps\DatasReport_SoilSedimentCharacterization\AQ_Figure05_PCB_Delineation.mxd



Figure 5
Upland PCB Delineation Results

Data Report: Soil and Sediment Characterization
 Port of Seattle T-25 South Design Characterization

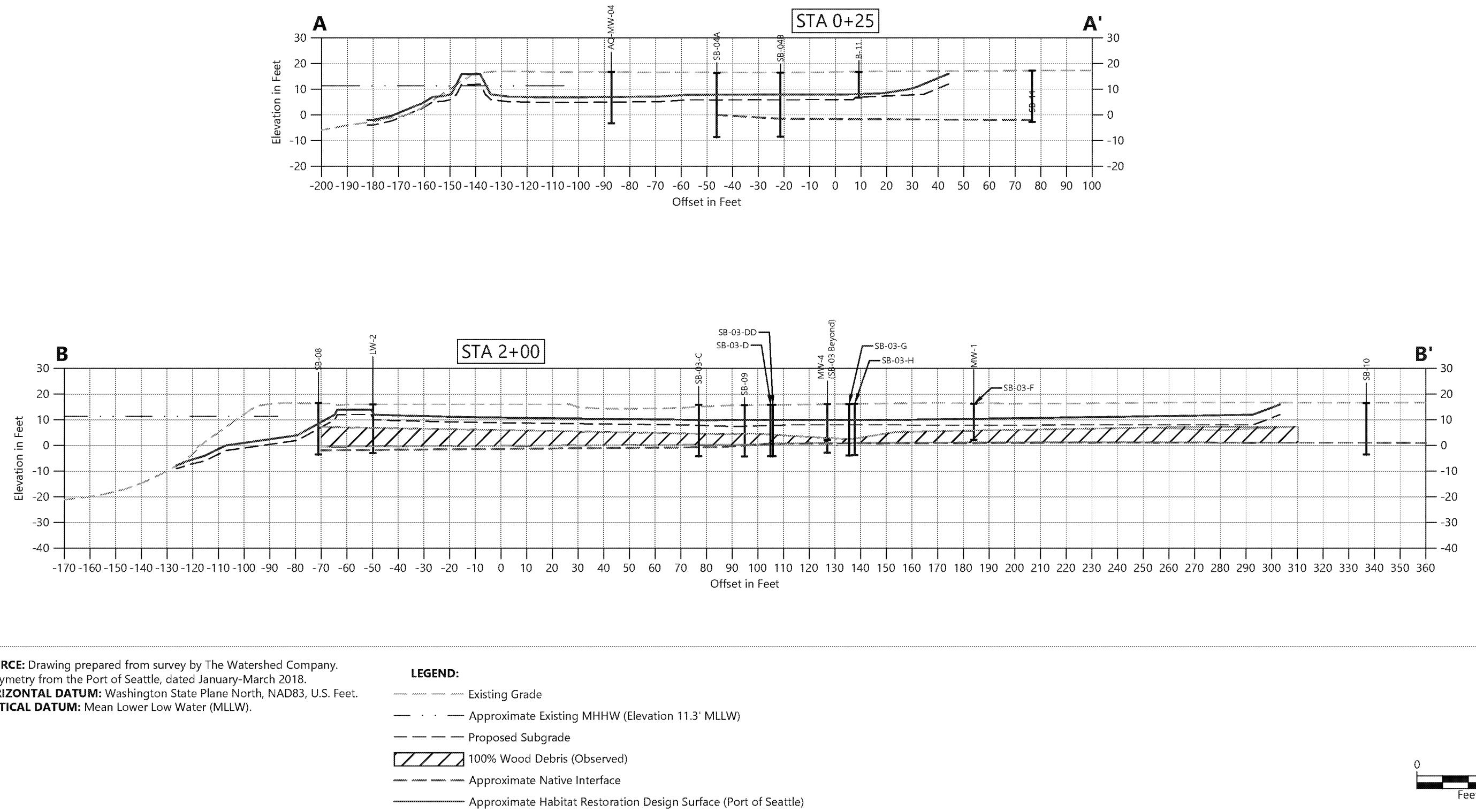


Publish Date: 2020/12/10 10:02 AM | User: chewetl
Filepath: K:\Projects\0003-Port of Seattle\SD-01 - T-25 Wetland\0003-WK-011 (Post-Sample XS With Updated Design).dwg P6_Land



Figure 6
Project Elevation Changes

Data Report: Soil and Subsurface Sediment Characterization
Port of Seattle T-25 South Design Characterization

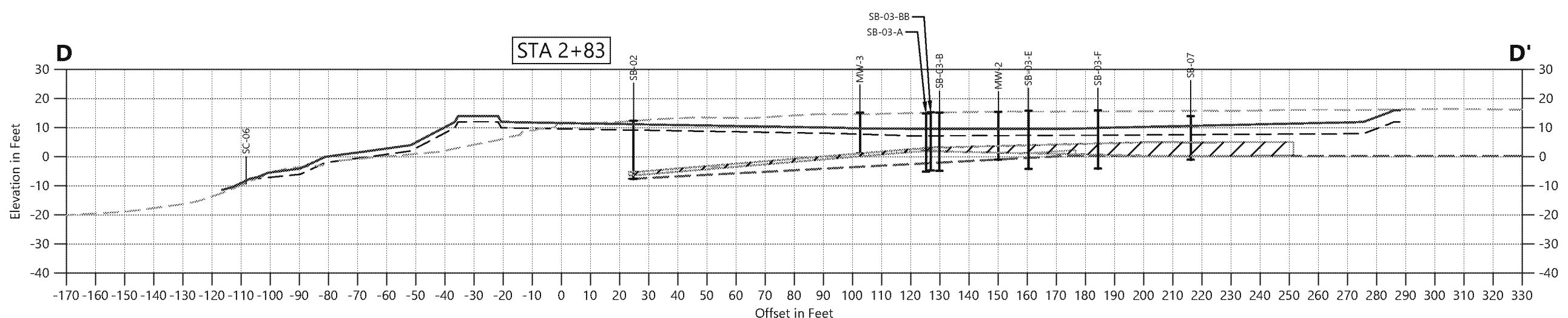
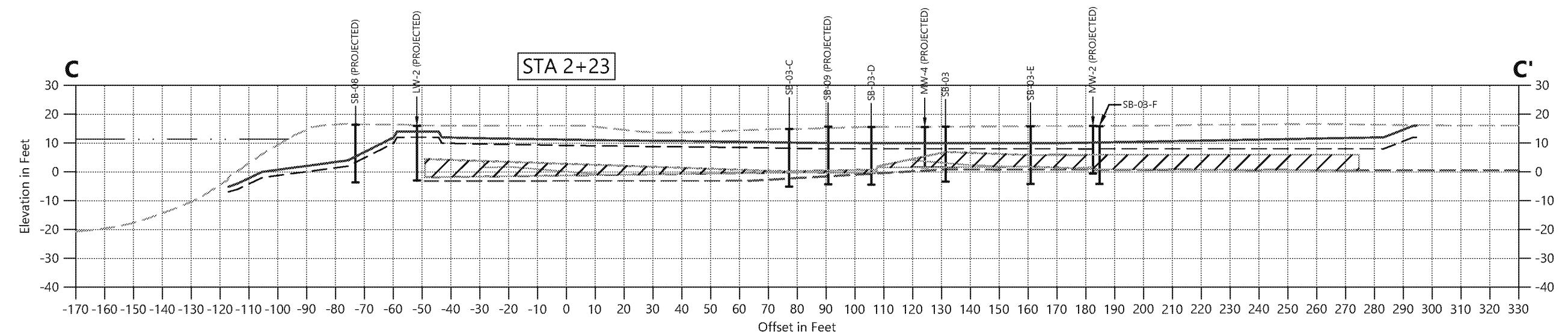


Publish Date: 2020/12/10 10:02 AM | User: chewett
Filepath: K:\Projects\0003 - Port of Seattle\POG SD-01 - T-25 Wetland\0003-WK-011 (Post-Sample XS With Updated Design).dwg Figure 6a



Figure 6a
Cross Sections A and B

Data Report: Soil and Subsurface Sediment Characterization
Port of Seattle T-25 South Design Characterization

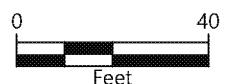


SOURCE: Drawing prepared from survey by The Watershed Company.
Bathymetry from the Port of Seattle, dated January-March 2018.

HORIZONTAL DATUM: Washington State Plane North, NAD83, U.S. Feet.
VERTICAL DATUM: Mean Lower Low Water (MLLW).

LEGEND:

- Existing Grade
- · · — Approximate Existing MHHW (Elevation 11.3' MLLW)
- · · — Proposed Subgrade
- 100% Wood Debris (Observed)
- Approximate Native Interface
- Approximate Habitat Restoration Design Surface (Port of Seattle)

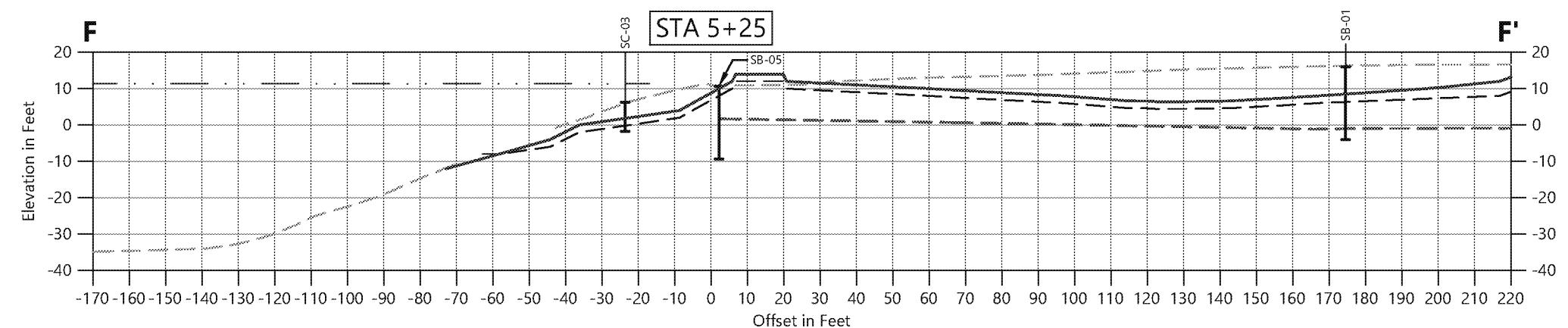
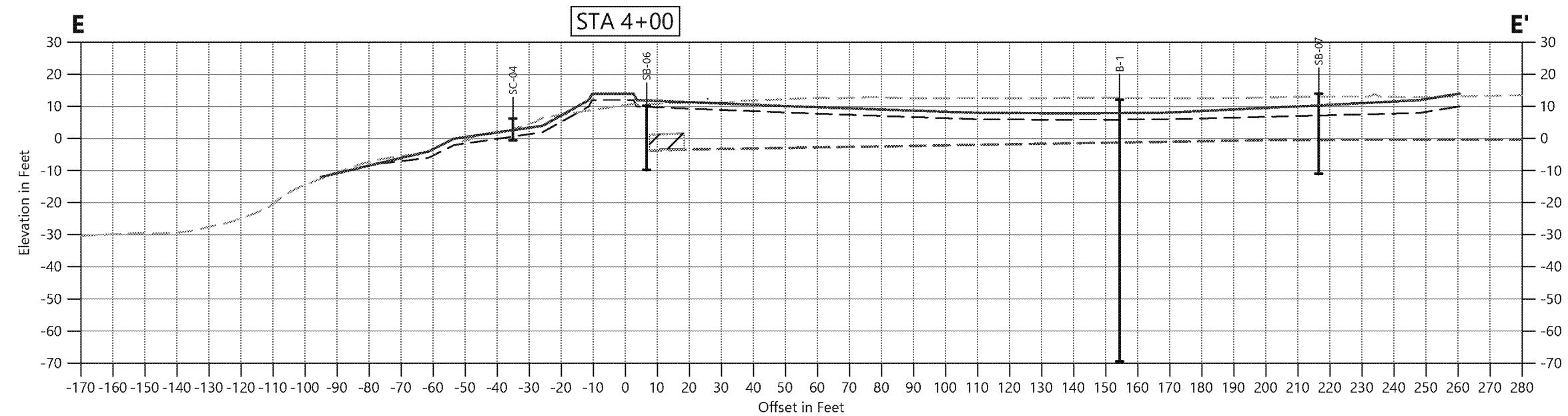


Publish Date: 2020/12/10 10:00 AM | User: chewett
Filepath: K:\Projects\0003 - Port of Seattle\POG SD-01 - T-25 Wetland\0003-WK-013 (Post-Sample XS_to PCE).dwg Figure: 6b



Figure 6b
Cross Sections C and D

Data Report: Soil and Subsurface Sediment Characterization
Port of Seattle T-25 South Design Characterization



SOURCE: Drawing prepared from survey by The Watershed Company.
Bathymetry from the Port of Seattle, dated January-March 2018.

HORIZONTAL DATUM: Washington State Plane North, NAD83, U.S. Feet.
VERTICAL DATUM: Mean Lower Low Water (MLLW).

LEGEND:

- Existing Grade
- · · — Approximate Existing MHHW (Elevation 11.3' MLLW)
- · · — Proposed Subgrade
- ||||| 100% Wood Debris (Observed)
- Approximate Native Interface
- Approximate Habitat Restoration Design Surface (Port of Seattle)



Publish Date: 2020/12/10 10:02 AM | User: chewett
Filepath: K:\Projects\0003 - Port of Seattle\POG SD-01 - T-25 Wetland\0003-WK-011 (Post-Sample XS With Updated Design).dwg Figure 6c



Figure 6c
Cross Section E and F

Data Report: Soil and Subsurface Sediment Characterization
Port of Seattle T-25 South Design Characterization